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Soft X-Ray Emission Spectra of Metallic Solids: Critical Review of Selected Systems and Annotated Spectral Index

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SOFT X-RAY EMISSION SPECTRA OF METALLIC SOLIDS: CRITICAL REVIEW OF SELECTED SYSTEMS AND ANNOTATED SPECTRAL INDEX

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Foreword

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David R. Lide, Jr., Chief
Office of Standard Reference Data

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Soft X-Ray Emission Spectra of Metallic Solids: Critical Review of Selected Systems and Annotated Spectral Index

A. J. McAlister, R. C. Dobbyn, J. R. Cuthill, and M. L. Williams

Theory and experimental practice in the field of soft x-ray emission from metallic solids are briefly reviewed, and measurements on a number of systems (Al, Al in AuAl_2 , Al and Mg in Al-Mg, Cu, Cu and Ni in Cu-Ni, Li, Mg, Na, and Ni) are critically evaluated and compared with the results of other techniques and theory with a view to establishing the pertinence of the soft x-ray measurements and indicating specific guidelines for further enhancing their value. In addition, an exhaustive annotated index of measured spectra is provided.

Key words: Alloys; critical review; emission spectra; intermetallic compounds; metals; soft x-ray; spectra.

1. Introduction

In recent years, considerable progress has been made in understanding the electronic structure of solids. On the theoretical side, within the framework of the independent particle model, the techniques of energy band theory have been developed to the extent that many experimenters are now employing them in the detailed interpretation of their own data. Ordered compounds as well as elemental materials are under investigation, and the theory of disordered systems is being actively pursued. In addition, the theory of many-body systems has progressed to the point that the general limits of validity of the independent particle approach are fairly well understood. Experimental progress has been no less dramatic. An impressive array of experimental techniques has been brought to bear on the problem. These techniques fall into two categories: Fermi level probes of metallic solids, such as the many techniques for gaging the Fermi surface, low temperature specific heat, the Knight shift; and broad probes of the electronic structure, such as optical, photoemission, soft x-ray, ion neutralization, positron annihilation, and Compton spectroscopies. All of these techniques are being applied, with ever increasing refinement, to more and more systems. The obvious price of such progress is an enormous growth of the literature and the attendant danger of individual workers losing touch even with work in their own fields. Topical reviews are much needed to ward off this danger.

The present paper is intended to fulfill a part of this need by providing a selective critical review and

literature index to one major aspect of one experimental technique. The technique is soft x-ray emission spectroscopy, a broad probe which explores the entire occupied band structure. We further restrict ourselves to metals in their pure state, in alloys, and in intermetallic compounds. We use the term "soft x-ray" in a special way. "X-ray" has its traditional sense of describing radiative transitions involving initial ion core level vacancies. But the term "soft" shall imply that the final vacancy lies within the conduction band. Thus, as illustrated in figure 1, the technique consists of producing vacancies in ion core levels and observing the spontaneous radiation emitted when electrons initially in the conduction band drop into the vacant core states. Generally, photons emitted in this process are "soft" in the usual sense of being readily absorbed by the atmosphere, and measurements are of necessity carried out in vacuum instruments. This is not always the case, however. The penetrating radiation emitted in conduction band to K level transitions in the 3d metals is "soft" by our definition. To further orient the reader unfamiliar with the field, a typical instrument is illustrated in figure 2. It consists of two major components: a sample head in which the soft x-rays are generated, and a spectrometer in which they are energy analyzed and detected. To achieve sample cleanliness and reliable, reproducible results, the sample should always be mounted in vacuum. If, as in the case illustrated, initial state ion core vacancies are prepared by electron bombardment, a vacuum system must be employed. If inner level vacancies are produced by photoemission (shining x-rays from a separate tube onto the sample,

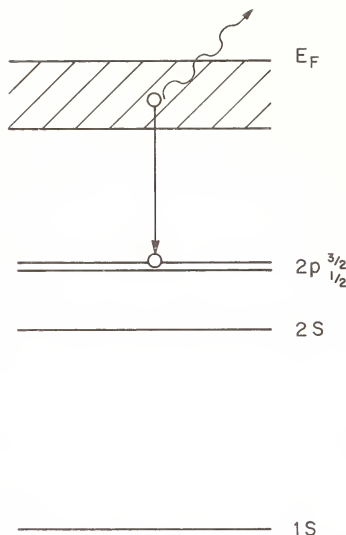


Figure 1. An energy level scheme, appropriate to Al metal, illustrating the soft x-ray emission process. A vacancy of well defined energy is produced in some ion core level by electron beam bombardment or photoemission. An electron from the conduction band may drop into the core hole, the relaxation being accompanied by emission of soft x-ray photon. The energy distribution of the emitted photons reflects the distribution in energy in the conduction band of the particular orbital character allowed by the dipole selection rules.

for example) and penetrating radiation is produced, then the sample could be mounted in atmosphere, save for the reasons of cleanliness and reliability cited above. Figure 2 shows a particular type of spectrometer using a concave grating as the dispersing element and a driven photomultiplier as a detector. Other arrangements may be used, depending on spectral range and purpose. For instance, bent crystals and double crystals are used as dispersing elements in regions of higher photon energy. Proportional counters or photographic plates may be used as detectors as the application demands.

The major aims of this review are threefold: to promote better experimental practice by analysis of a representative sampling of systems upon which two or more measurements have been performed, to afford theorists a better understanding of the

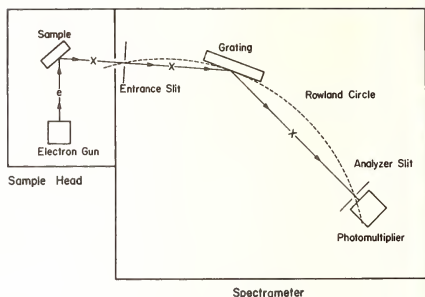


Figure 2. Any soft x-ray system must consist of (1) a sample head in which the x-rays are produced, and (2) a spectrometer in which they are energy analyzed and detected. In most practical applications, each must be mounted in vacuum since the radiation is usually easily absorbed by the atmosphere. Where the radiation is highly penetrating, it is well to keep the sample head under vacuum in the interest of sample cleanliness.

problems and limitations of the measurements, and to provide an easily used key to the literature of this subfield. The material presented to achieve these ends and its organization are as follows. In section 2, after brief surveys of the status of theory and experimental technique, we give a reasonably thorough critical review of experimental results on selected systems. Criteria for critical evaluation are developed in subsection 2.2, and cogently summarized in the introduction to subsection 2.3. In the latter segment, contact is made with theory and the results of other experimental techniques where possible. Since photoemission and ion neutralization results will be the other techniques most frequently compared, a brief description of these techniques has been provided in figure 3. Section 3 contains a comprehensive annotated index of soft x-ray emission spectra from metallic systems. The spectra are grouped according to the principal quantum number of the inner level involved (K, L, M, . . . for $n=1, 2, 3, \dots$), and listed alphabetically by elements studied (all elements permuted) within this grouping. Additionally, the spectra are separately listed alphabetically by author (all authors permuted). Also included is a chart showing the spectral ranges over which approximately 90 percent of the oscillator strength of many pure metal spectra extends.

All references in section 2 are made by author and our reference number and will be found in the author listing of section 3.

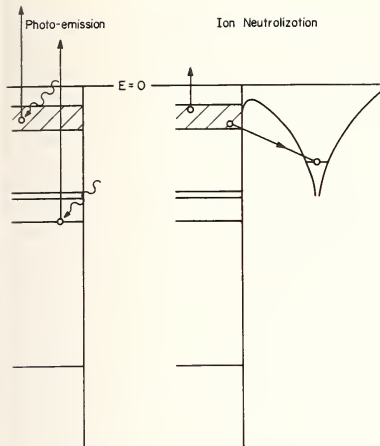


Figure 3. *Photoemission (x-ray or UV induced)*: An incoming mono-energetic photon beam ejects electrons from the metal. If UV photons are used, only conduction band states are accessible for study; if x-rays are used, core states may be studied as well. The kinetic energy spectrum of ejected electrons yields information on the fold of occupied and unoccupied states. The two may be sorted out by varying the exciting photon beam energy.

Ion neutralization: A low energy beam of noble gas ions impinges on the metal surface. If a vacant ion state lies below the conduction band of the metal, an Auger relaxation may occur at the surface, one electron of the Auger pair filling the ion vacancy, and the other being raised to an excited state whence it may escape from the metal. The energy spectrum of ejected electrons contains information on the state density, though probably only near the surface.

2. Review of Soft X-ray Emission Spectra from Metallic Systems

2.1. Theoretical Situation

Conduction band emission spectroscopy is carried out by preparing vacancies in ion core levels, in the manner outlined in the previous section, and then observing the energy distribution of photons spontaneously emitted as electrons initially in conduction band states drop into vacant core levels. Since the core levels are relatively sharp, some picture of the distribution of the conduction band states in energy is expected to emerge. To proceed further, we note that the core states are compact, normally occupying much less than a unit cell volume. Furthermore, in typical experiments, the density of ions with vacant

core levels is low enough that the probability of their interacting is negligible. Thus, the dimensions of the radiating system are small compared to a wavelength, and the dipole approximation is valid. One can then write for the photon emission rate

$$R(\omega) \propto \omega/l \sum_{i,f} |\langle \psi_f | \sum_k \mathbf{p}_k \psi_i \rangle|^2 \delta(\hbar\omega - E_i + E_f)$$

where \mathbf{p} is electron momentum. The k sum ranges over all electrons of the system, the i sum over l initial states, and the f sum over all final states. ψ_i and ψ_f are exact state vectors; E_i and E_f their energies. The usual dipole selection rules apply, and thus the emitted spectrum depends on the orbital symmetry of the inner level: a K level samples only the p -orbital admixture of the conduction band; L_2 and L_3 levels, the s and d orbital admixture.

The above expression for the soft x-ray emission spectrum is exact so far as the crystalline states are concerned. It can be solved in several approximations, in the simplest of which dynamic interactions between the electrons and local charge reorganization due to the presence of the core hole are ignored. ψ_i and ψ_f are approximated by antisymmetric linear combinations of single particle wave functions, ψ_i describing N conduction states plus a core with a vacancy, ψ_f an excited state containing $N-1$ conduction states and a full core. If the initial and final states are represented by linear combinations constructed from the same orthonormal set, the matrix element reduces to a sum of terms involving only single initial core and final band states. In the first attempt at this sort of analysis, Houston (319000) used free electron wave functions for the conduction band states, an approach which ignores the fact that the strongly localized core functions sample the band states near the nucleus where free electron waves form a very poor approximation to the Bloch states. This factor and an approximate accounting of the effect of crystal symmetry on the orbital admixture of the band states were introduced by Jones, Mott, and Skinner (349000). Only recently have attempts been made to carry this one-electron approach further by detailed calculations based on band theoretical results. While only a few systems have as yet been studied in this way—pure Al and Cu, Al in AuAl_2 , all discussed in some detail in section 2.3. below—*structural* agreement with experiment is remarkably good.

A number of features of the observed emission profiles cannot be explained by the one-electron model described above. Broad low energy tails and

weak satellites on the low energy side, shifted down from the main band by the plasmon energy, are obvious examples. Moreover, while structural features such as peaks and edges occur at predicted locations, their observed amplitudes and sharpness differ from the simple one electron prediction, and seem to require screening and lifetime effects for their explanation. A number of workers have examined the effects of charge reorganization about the core hole in the one-electron approximation—Friedel (520032), Goodings (659065), Allotey (679087)—emphasizing light metal spectra, particularly the Li K spectrum [Tomboulou and Bedo (589030)], which displays a puzzling early peak, about 0.6 eV below the high energy edge. It seems fair to say that their results, while plausible, offer no definitive explanation of the observed profiles. (See particularly the discussion of the Li K spectrum given below). The first attempt to account for the effects of the electron-electron interaction (beyond the usual effective potential of the one-electron approach) was carried out by Landsberg (499007), who used a static screened interaction to compute the energy dependent lifetime of final state conduction band holes. In this way, he was able to account for the broad low energy tail of the Na $L_{2,3}$ spectrum. Despite the rather good fit obtained, this result was defective in several respects. Since a static interaction was used, the method could not handle the plasmon satellite [observed later; see Rooke (639085)]. The small pip seen at the high energy edge [Skinner (409005) and later work discussed below] remained unexplained. Landsberg adjusted the screening length to give best fit. The length giving optimum fit was significantly shorter than that computed from the Bohm-Pines theory (539018). This situation worsened when Pirenne and Longe (649108) introduced the further effect of electrons virtually scattered from the core defect. Energy must be supplied to make the virtual processes real when a photon is emitted and further broadening is introduced. The static screening length needed to fit the experiment when this process is introduced results in further deviation from the Bohm-Pines length. A successful resolution of the plasmon and screening length difficulties was given by Glick and Longe (659075), who calculated the intensity of the tailing, including the plasmon satellite, of the Na $L_{2,3}$ spectrum by carrying out a many-body perturbation estimate of the matrix elements, including only the lowest order terms contributing to the tail region.

The earlier discrepancy with the Bohm-Pines theory was found to have resulted from omission of certain cross terms in the static approximation. The Glick-Longe first order theory, however, diverged in the main band. Together with Bose (689344), they extended the work to the main band by summing over certain classes of terms in the many-body expansion. A notable result of this latter work was a distinct enhancement of intensity at the high energy edge resulting from a heavy production of virtual electron-hole pairs via dynamic scattering from the core hole. This provides a natural explanation for the emission edge pip observed in the Na spectrum, and agrees well with the independent analyses of the effects of sudden decay (or build up) of screening charge about the ion core defect upon emission (or absorption) edge intensities by Mahan (679320) and Nozières and de Dominicis (699051). Particular attention should be called to the work of Hedin and Lundqvist (699354), whose work on the relation between structural peaks in the spectral distribution function of the interacting electron gas, the eigenenergies of one-electron theory, and the results of a variety of experiments, including soft x-ray emission spectroscopy, provides the most convincing theoretical rationalization of the agreement cited above between one-electron estimates of soft x-ray profiles and experiment.

2.2. Remarks on Experimental Practices

It is not our purpose here to discuss instrumental details and technique. The interested reader will find much useful information and many references in Parratt's classic review (599072), the Strathclyde Conference Proceedings, edited by Fabian (689336), and the recent text by Samson (679056). Rather, we focus attention on those aspects of current experimental practice which most directly affect interpretation of emission band spectra. It is important to note, however, that the true emission spectrum is not measured, but rather the quantity

$$R_m(\omega_s) = \int_{-\infty}^{\infty} d\omega R(\omega) S(\omega) \rho(\omega) W(\omega - \omega_s)$$

where R_m is the measured emission rate at frequency setting ω_s , $R(\omega)$ the true emission spectrum at frequency ω , $S(\omega)$ the fraction of emitted photons escaping the sample (self-absorption factor), $\rho(\omega)$ the probability of a photon of energy $\hbar\omega$ being detected, and $W(\omega - \omega_s)$ the instrumental window function. The true emission rate $R(\omega)$ may not be (in fact,

probably is never) the precise quantity theory would predict and experiment determine. Bulk or surface contaminants could well contribute a spurious component. More typically, overlapping contributions may arise when several initial states not widely separated in energy occur. Thus, for instance, the measured L profile of Al inevitably consists of strongly overlapping L_2 and L_3 profiles, accompanied by a negligibly weak partially overlapping high energy satellite as well (Neddermeyer and Wiech, 709000). These problems are more pronounced in the M spectra of Cu and Ni, and are discussed in the following subsection. They can be dealt with in some cases, but their existence and the problems involved in correcting data for their presence should be borne in mind by the reader and stressed by the experimenter in reporting his results.

A number of advances have been made in experimental technique over the last decade. The use of improved vacuum technique lends greater confidence in the more current results. Two other advances are perhaps more significant. The introduction of photon counting techniques and digital recording systems has resulted in accurately linear response and known statistical confidence levels. Such work as Rooke's study of the plasmon satellites of the light metals (639085) and the identification of 3d-band structural features in the M_3 emission spectra of Cu (Dobbyn et al., 709080) and Ni (Cuthill et al., 679300) would not have been possible without this technique. Equally important is the growing realization of the effects of self-absorption on emission profiles. In this regard, Bonnelle (649057) demonstrated the utility of optimizing x-ray takeoff and exciting electron beam incidence angles. Liefeld (689330, 709116) has demonstrated that the many discrepancies among recorded 3d-metal L_3 emission profiles arose mainly from differences in satellite and self-absorption weightings due to differences in excitation conditions. It is of interest to note that the threshold effects observed in available Na L and Li K emission spectra (see the discussion in the next subsection), so important to the verification of current theory, may be affected to a significant degree by self absorption. Of course, when excitation conditions are accurately known and, in addition, the absorption coefficient of the sample is known over the appropriate spectral range (the latter is not usually the case), self-absorbed spectra can be theoretically corrected. (For instance, see Yakowitz and Heinrich (689304).)

Systematic uncertainties still remain a problem in the field. (For instance, see the discussion of Al profiles in the following subsection.) We address ourselves here, if not to their complete elimination, at least to the suggestion that measurements be reported in sufficient detail that their importance can be assessed by the reader. The major reasons for this problem are evidently the unique character of each instrument in use and the lack of any standard instrumental comparison technique. The major difficulties appear to be as follows. The frequency response $\rho(\omega)$ of dispersing elements and detectors is seldom known. Measurements on the same material are often made under different excitation conditions; not only does the intensity of excitation vary (exciting voltage and current density, say, in the case of electronic excitation), but the excitation geometry (exciting beam incidence and x-ray takeoff angles) usually differs as well. Hence $S(\omega)$ and satellite contributions to $R(\omega)$ can vary from measurement to measurement. Removal of background from electronically excited spectra is complicated by all of these factors. And too often, statements of slit settings and estimates of the inherent, varying instrumental resolution, $W(\omega - \omega_s)$ (the spectral window), are omitted, not surprisingly in the case of grating instruments where no simple experimental method of estimating W is available. These problems are not insuperable, of course, but in most cases their complete solution involves considerable difficulty. When painstaking efforts have been made to assess the instrumental response, as in the work of Neddermeyer and Wiech on Al (709000) and Neddermeyer on Mg (709115), then a detailed report of spectra measured on the calibrated instrument should serve as a valuable secondary calibration standard. However, the low L_2/L_3 intensity ratios observed in these measurements indicate that they have been made at low x-ray takeoff and high electron incidence angles. The authors do not give these numbers. (They can be found in Neddermeyer's thesis (699355); however, they are not cited in the published papers.) Now one must either reproduce their excitation conditions or, knowing the appropriate absorption coefficients, correct for differences in excitation conditions when using their data for calibration. Thus, the utility of their results as a secondary calibration standard is limited, not by the presence of self absorption in the profile, but by the authors' omission of a conveniently accessible complete summary of the conditions under which the measurements were made.

Other examples could be cited but these few seem sufficient basis for recommending that the following guidelines be followed by all workers in reporting emission spectra. This information should be given or some *readily accessible* source cited in all papers.

A. The Instrument

- (i) Method of calibration.
- (ii) Estimates of frequency response. If none, give type and nature of dispersing element, settings.
- (iii) Report of resolution tests.
- (iv) Type of detector and recording system.

B. Excitation

- (i) Type: x-ray or electron. Monochromaticity. Current density and voltage.
- (ii) Geometry: beam incidence and x-ray takeoff angles.

C. Sample

- (i) Preparation: purity, method.
- (ii) Characterization: type of tests and results.
Particularly important for alloys and compounds.
- (iii) Handling: before mounting; in vacuum before and during measurements. Tests made in instrument (e.g., scans for C and O K emission bands).

D. Data Treatment

- (i) Explain everything clearly—all corrections, smoothings, unfoldings.
- (ii) *Show raw measured data*, indicating statistical confidence level.

2.3. Critical Survey of Selected Main Band Results

In the following critical survey, we deal with complete transcribed spectral profiles rather than such commonly used spectroscopic parameters as peak position, half-width, and asymmetry index. We do so because such parameters can be strongly affected by the experimental problems cited above and because it is the existence or otherwise of characteristic structure in the profiles, rather than coarse general features, which is of most interest to the student of electronic structure. Only main bands will be presented. Unless otherwise indicated, the ordinate is $[\text{Rate}(\hbar\nu) \text{ per unit energy}]/\nu^2$, as given by the author or so corrected. The abscissa is $E-E_F$ in eV, where E_F is the estimated position of the Fermi level. All curves are normalized at peak ordinate value.

This is not the best choice in all cases; in some, it will, in fact, overemphasize discrepancies. Additionally, the curves are corrected for background, usually by the author, but by us (using a simple linear approximation) if he has not done so. All alloy concentrations are given in atomic percent.

The criteria for value judgments between measured profiles are those established in section 2.2. An ideal measurement will have been made on a clean, well characterized sample in an instrument with accurate energy calibration, known frequency response, and a sharp, known spectral window. Electromagnetic detection will have been used, and data of known statistical confidence level presented. Excitation conditions will have been clearly stated, and self-absorption effects will be, if not eliminated, of readily assessable extent. In cases where many measurements have been made, we select for display those few which come closest to the ideal. (An occasional good measurement, in particularly close agreement with one of those displayed, may be omitted for the sake of clarity in the figures; such an omission will be noted in the text.) Where only two or three measurements are available, we show all which are free of obvious catastrophic error.

a. Al

In figure 4 are presented a number of results, experimental and theoretical, on the $L_{2,3}$ and K emission bands of metallic Al, the material most frequently studied by soft x-ray spectroscopists, as well as the photoemission spectrum recorded by Wooten et al. (659084) at $\hbar\nu = 11.3$ eV.

The $L_{2,3}$ measurements are from Fomichev (679102) (background corrected); Neddermeyer and Wiech (709000 and 699355); and Rooke (689154). All used electromagnetic detection. Neddermeyer and Wiech present an average of strip chart records; Fomichev (679102) total counts, accumulated point by point; Rooke total counts, accumulated by summing many digitally recorded continuous sweeps of the spectrum. Fomichev and Neddermeyer and Wiech used Au coated, blazed gratings, and have made measurements of and corrected for grating frequency response. Neddermeyer and Wiech argue for a smooth, relatively flat detector response. Rooke used an unblazed glass grating and did not make response measurements. No sample temperatures were reported; Fomichev notes use of a water-cooled anode. The curves have been shifted slightly to coincide at $Y = 0.6$ on the leading edge (a Fermi energy

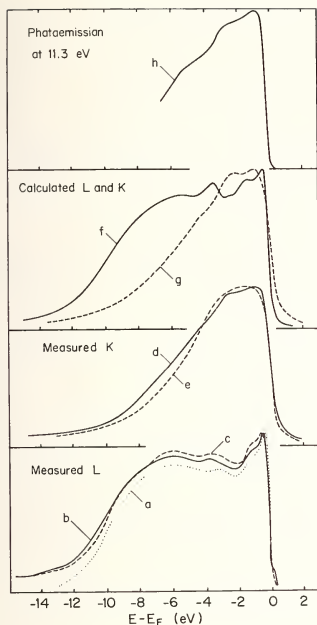


Figure 4. Al $L_{2,3}$ spectra: (a) Fomichev, (b) Neddermeyer and Wiech, (c) Rooke. Measured K spectra: (d) Deslattes, (e) S  n  maud. Calculated spectra of McAlister: (f) L, (g) K. Measured photoemission spectrum at 11.6 eV, (h) Wooten *et al.*

estimate suggested by calculations cited below). All three are electronically excited. All appear to be rather strongly self absorbed at the edge. Fomichev and Neddermeyer and Wiech have achieved better resolution than Rooke, and their profiles are more intense at the band edge. Normalization to peak intensity, therefore, makes their curves appear weaker in the lower reaches of the emission band. The definition of the $L_{2,3}$ edges of Fomichev and Neddermeyer and Wiech suggests that about the same resolution was achieved. In light of their attempts at determining instrumental frequency response, the discrepancies between Fomichev and Neddermeyer and Wiech are puzzling. In any case, all three spectra show the same type of structure, as do the available band theoretical estimates of the profile [Rooke (689153), Smrcka (719187), and McAlister (unpublished)]. Other measurements showing the same structure have been reported: Sagawa (689323);

Appleton and Curry (659066); Dimond (679063), (the latter in close agreement with Rooke's measurements). Earlier work, in various respects less satisfactory than those cited above, by Catterall and Trotter (639087), Skinner (409005), and Cady and Tomboulia (419001), is in essential agreement. Discrepancies certainly exist among the various measurements of the $L_{2,3}$ spectral profile. Their source is not clear. Temperature differences could play a role. The exact location of the deeper lying structure is liable to uncertainty from inherent noise, mode of data presentation, variations in instrumental response, and errors in estimating spectral dispersion. It seems safe to conclude, however, from the weight of experimental evidence, that the structure observed is real, though at present not perfectly characterized and, from the calculations, that it arises from band structure effects. Neither the calculations nor the measurements are sufficiently refined at present to ascertain the need for invoking singular edge behavior.

The two K profiles are from Deslattes (unpublished) and S  n  maud (see Cauchois, 689326). (The latter is a revision of earlier work by S  n  maud (669142).) Deslattes used a two-crystal spectrometer and digital, stepwise recording of the output of an electromagnetic detector. (The curve shown here was obtained by averaging two raw spectra, kindly supplied us by Dr. Deslattes, and subtracting a constant background correction.) S  n  maud used a bent crystal instrument and photographic recording, and employed photoexcitation rather than electron beam excitation. The results of S  n  maud, therefore, needed no background correction. The overall shapes of the spectra are in good accord, particularly in view of our rough background correction to Deslattes results. The results of Deslattes show weak but clear structural features which are in quite good agreement with the calculated result, curve *g* of figure 4. The failure of S  n  maud (and other experimenters as well) to observe the structure in the K spectrum is in all likelihood due to the use of photographic detection (with only marginal response linearity) and the somewhat poorer resolution of the spectrometers employed.

The calculated profiles of McAlister (unpublished) are shown here; the L profile labeled *f*, the K profile *g*. Of the three available estimates, we believe this one to have determined the orbital character of the band wave functions most accurately. As noted above, the evident structural correlation between the

calculated and measured profiles strongly suggests that band structure effects are being observed. The further structural correlation with the ultraviolet photoemission spectrum lends additional weight to this suggestion.

b. Al in AuAl₂

The measured $L_{2,3}$ profiles of Al from AuAl₂ shown in figure 5 are from Williams et al. (709081)

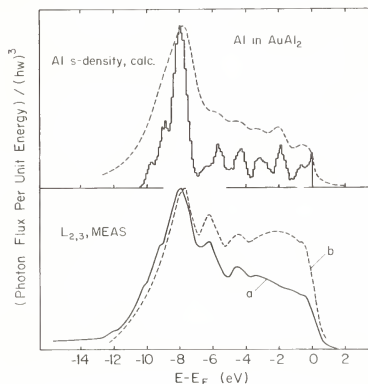


FIGURE 5. Al in AuAl₂. Lower curves, measured Al $L_{2,3}$ spectra: (a) Williams et al., (b) Curry and Harrison. Upper solid curve: calculated s -like state density at Al sites. Upper dashed curve: s -like state density at Al sites subjected to Landsberg smear.

and Curry and Harrison (709016). Williams et al. used photoelectric detection and summed many scans of the spectrum. Curry and Harrison averaged several photographic records. The structural agreement between the two spectra is quite good. Comparison of $L_{2,3}$ spectra of pure Al from the two groups with other results [see above, and Appleton and Curry (659066)] suggests that the overall difference between the profiles is due to spectrometer frequency response, the results of Curry and Harrison being more severely affected. Williams et al. appears to have achieved more nearly linear intensity response and spent greater effort on specimen characterization. The upper curves of figure 5 give some theoretical estimate of the Al $L_{2,3}$ profile from the compound. The solid curve is Switendick's (709113) estimate of the density of s -like states at Al sites. This has been shown [Goodings and Harris (699161);

Bennett et al. (709082); Dobbys et al. (709080)] to be the leading term in a band theoretical estimate of the profile. The dashed curve is the result of applying an approximate Landsberg fold (499007) to the Al s -density. The agreement seen between the calculation and the measured profiles is quite striking, as good in fact as that noted between measured and calculated pure Al $L_{2,3}$ spectra above.

c. Al and Mg in Al-Mg

In figures 6 and 7 are compared Al (fig. 6) and Mg (fig. 7) $L_{2,3}$ emission spectra from the pure metals

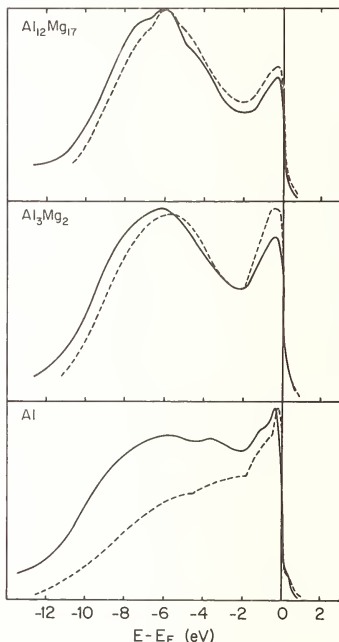


Figure 6. Al in Al-Mg. Measured Al $L_{2,3}$ emission spectra from Al and two Al-Mg Compounds.

and the compounds Al₃Mg₂ and Al₁₂Mg₁₇. The data are from Neddermeyer (709115), solid curves, and Appleton and Curry (659066), dashed curves. Both used electron beam excitation; Neddermeyer at 2.0 keV, Appleton and Curry at 3.5 keV. Neither reported electron impingement or x-ray takeoff angles.

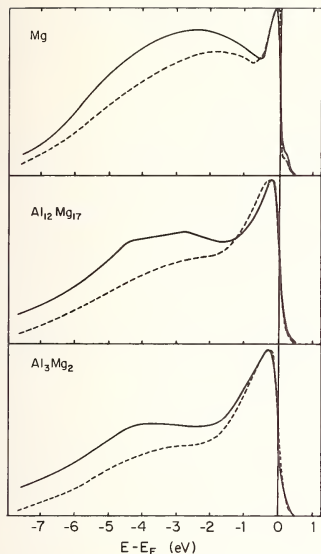


Figure 7. Mg in Al-Mg. Measured Mg $L_{2,3}$ emission spectra from Mg and two Al-Mg compounds.

No temperatures were reported, although Appleton and Curry used water-cooled targets. Stated pressures were: Neddermeyer 4×10^{-8} , and Appleton and Curry, 1×10^{-6} torr. Neddermeyer used photoelectric detection, averaged several strip chart recordings of ratemeter output, and corrected his results for the known frequency response of his Au coated, blazed grating. Appleton and Curry used an unblazed glass grating, with photographic detection. As noted above (Al in AuAl₂), and evident here, Appleton and Curry's instrumental response increases markedly with photon energy, while Neddermeyer's, because of the quantum efficiency of the photocathode used [see Samson (679056)], probably decreases slightly. Both Neddermeyer and Appleton and Curry note that their compound samples probably deviate from stoichiometry by 1 or 2 percent.

Apart from the noted difference in instrumental frequency response, these two sets of measurements are in good general agreement. Specific points of disagreement occur in the placement of the minimum of the pure Mg spectrum; the lack of structure in Appleton and Curry's Mg profile from Al₁₂Mg₁₇; and,

finally, in the shape of the Mg profiles from the compounds below -4.5 eV. In this energy range, Neddermeyer's curves are noticeably concave while Appleton and Curry's are slightly convex. This latter point is pertinent to understanding the electronic structure of this alloy system and needs further experimental clarification. Early measurements by Farineau of the Al and Mg K spectra from Al-Mg alloys showed equal experimental band widths for Al and Mg in the alloys, with the common band width varying smoothly from pure Al to pure Mg. More recent K measurements by Fischer and Baun (679041), under cleaner vacuum conditions, are in essential agreement with Farineau's work. (The validity of these K measurements is questionable, however, since strong self-absorption effects may mask the true behavior. Reinvestigation of the K spectra with this difficulty in mind would be of considerable interest.) The L spectra clearly behave in a radically different way, each component retaining essentially the same observed band width throughout the composition range. This behavior is clearly shown in figure 8, where Neddermeyer's Mg and Al spectra are overlaid. The compound data of figures 6 and 7 are repeated here and the results from a solid solution of 5 percent Al in Mg are shown. The latter sample was believed to be single phase. The striking difference in measured band widths seen here probably stems from the necessity of local charge neutrality in a metallic system. More charge must accumulate in regions of greatest potential, here at Al sites. Screening is evidently accomplished by states lowest in energy being heavily localized at Al sites, and perhaps being of different orbital symmetry there than at Mg sites. (This latter point is suggested by the concavity of the Mg $L_{2,3}$ from Al₃Mg₂ and Al₁₂Mg₁₇ below -4 eV. Normally, one anticipates convexity for L spectra in this energy range, owing to dominantly s-like local wave function character there. See Jones et al., 349000.) Direct substantiation of this picture by band computations for the compounds is ruled out at present because of their complicated crystal structure. However, a rough model computation by Jacobs (699213) suggests that it is correct. Computational evidence does exist for energy dependent charging in other alloy systems. For instance, consider the calculations for AuAl₂ by Switendick (709113) cited above, where Bloch functions of dominantly d-like character at Au sites are highly localized there and exert influence on the charge distribution at Al sites largely through hybridization effects.

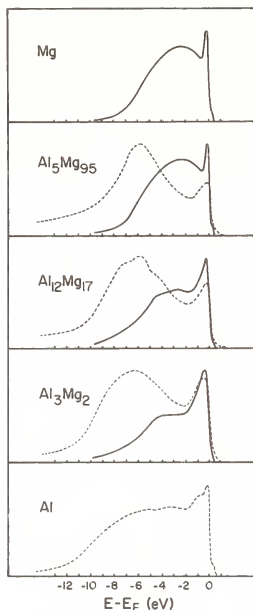


Figure 8. Al and Mg in Al-Mg. Measured Al and Mg spectra, matched in energy at the Fermi edge and overlaid. Spectra from pure metals, the compounds Al_5Mg_2 and $\text{Al}_{12}\text{Mg}_{17}$, and the solid solution 5 percent Al in Mg.

d. Cu

In figure 9, three measurements of the $\text{Cu } M_{2,3}$ spectral complex are shown. These are smoothed, background corrected spectra, as presented by the authors save for division by suitable powers of energy (energy flux per unit energy) versus photon energy. The curves have been shifted by slight amounts (no more than 0.3 eV) to match in energy at peak intensity. They are otherwise faithful transcriptions of the published curves. These data are from Bedo and Tombouliau (599002), solid curve; Dobbryn et al. (709080), dash-dot curve; and Clift et al. (639083), dashed curve. Bedo and Tombouliau and Clift et al. used photographic detection; Dobbryn et al., photoelectric detection. Dobbryn et al. summed many digitally recorded scans of the spectrum and, in view of the linear response of photoelectric detection and the known standard counting error in their data (1.1

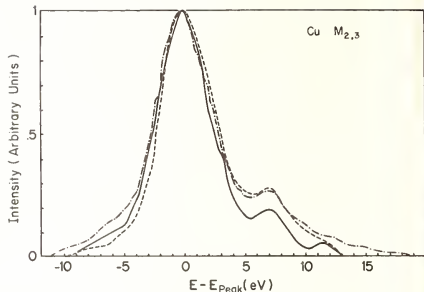


FIGURE 9. Cu. Comparison of three measurements of the $\text{Cu } M_{2,3}$ emission spectrum taken with different exciting electron beam voltages and different detection methods.

to 0.7 percent), asserted the fine structure they observed to be reliably established. Bedo and Tombouliau and Clift et al. report pressures of 1×10^{-6} torr, and used water-cooled targets. Dobbryn et al. reported a pressure of 7×10^{-8} torr, with the target at 580 °C [well above the O_2 surface cleanup temperature of 277 °C (Roberts, 609017)]. All used electron beam excitation with beam energies as follows: Bedo and Tombouliau, 1.5 keV; Dobbryn et al., 2.5 keV; and Clift et al., 3.5 keV. The grazing angles of electron beam incidence were 90, 20, and 90°; x-ray takeoff angles, 45, 90, and 32° for Bedo and Tombouliau, Dobbryn et al., and Clift et al. respectively. None attempted to assess self-absorption effects. Bedo and Tombouliau and Dobbryn et al. identify the structure above 5 eV in figure 9 as satellites, Dobbryn et al. noting that, energetically, they are likely to be double ionization satellites with the spectator hole residing in the M shell. This identification is supported by the trend in intensity of this structure relative to the main peak with exciting voltage. Dobbryn et al. (private communication) noted this same trend, comparing measurements made at 1.5 and 2.5 keV in the same instrument. Dobbryn et al. also noted that additional satellites nearer the parent bands are expected, with the spectator hole residing in the valence band. By treating the valence band satellites in a manner suggested by analysis of Liefeld's (689330) measurements of the L_3 spectra of Cu and Ni at and above the L_2 threshold excitation voltage, and the M shell satellites in the intermediate coupling approximation, Dobbryn et al. argued that the major features of the $\text{Cu } M_{2,3}$ spectrum could be approximated by

$$M_{2,3}(E) = [M_3(E) + \alpha_1 M_3(E - \epsilon) + \alpha_2 M_3(E - 2\epsilon)] \\ + [\beta_1 M_3(E - \delta - 2\epsilon/3) + \beta_2(E - \delta + \epsilon/\sqrt{3}) \\ + \beta_3 M_3(E - \delta + 2\epsilon/3)]$$

where $M_{2,3}(E)$ is the measured spectral complex and $M_3(E)$ the true single hole M_3 emission profile. The second bracketed term on the right approximates the satellites with the spectator hole residing in the $3p$ shell; the first represents the M_3 and M_2 parents and the satellites with spectator hole in the valence band. Dobbyn et al. inverted this expression and varied ϵ , the α 's, and the β 's over reasonable ranges, and found the estimated M_3 single hole emission profile to be relatively insensitive to choice of these parameters. In figure 10, the Dobbyn et al. estimate of the M_3 profile (SXS) so obtained is compared with the results of other deep band experimental probe studies: ion neutralization (INS) by Hagstrum and Becker (679195); x-ray induced photoemission (XPS) by Fadley and Shirley (689234); and ultraviolet induced photoemission (UPS) by Eastman (699246).

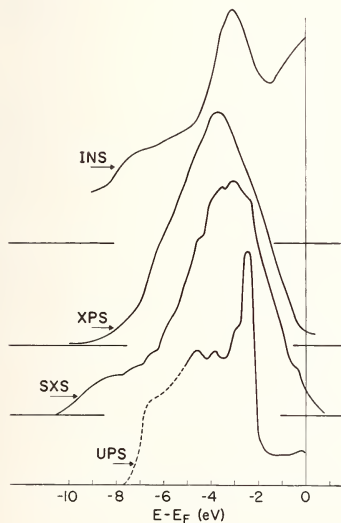


Figure 10. Cu. Comparison of various deep band probe results: ultraviolet photoemission optical density of states (UPS); reduced soft x-ray M_3 emission band (SXS); x-ray photoemission spectrum with Al $K_{1,2}$ excitation (XPS); ion neutralization unfold function (INS).

Note particularly the 1-to-1 correspondence of structural features in the main SXS and UPS humps and the agreement as to width and peak location of all four measurements.

In figure 11, the lower set of curves compares the experimental M_3 and L_3 single hole emission profiles, the latter determined by Liefeld (689330) at threshold excitation. Note particularly the greater width of the M_3 profile in the d -hump, and its greater relative intensity below the hump. Qualitatively, these features are predicted in the one-electron transition densities calculated by Goodings and Harris (699161), but they are overridden in the total emission spectra by the E^3 dependence of the dipole emission rate expression, this factor being important to the M_3 profile only. The Goodings and Harris results for the M_3 and L_3 Cu emission profiles are shown as the middle pair of curves in figure 11, where many-body level broadening has been taken into account with Blokhin and Sachenko's approximation (609057) to the Landsberg (499007) free electron result. Dobbyn et al. (709080) noted that if emission takes place after screening of the inner level defect, one might reasonably expect large positive s -wave and small negative d -wave shifts in the screening

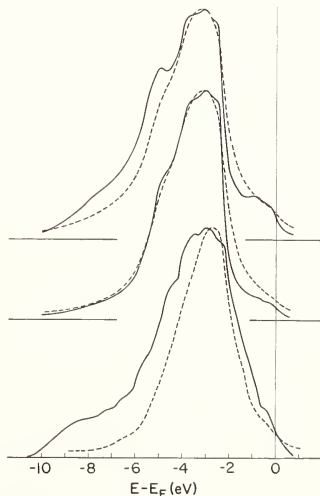


Figure 11. Cu. Comparison of measured and calculated Cu L_3 (dashed) and M_3 (solid) emission spectra. Lower curve, measured. Middle curve, band theory estimate; upper curve, band theory with approximate screening correction.

cloud. Thus, the *s*-like fraction of the calculated emission spectrum could be enhanced relative to the *d* by a factor in excess of 1, and the above-mentioned differences in one-electron transition rates enhanced by the screening. They tested this mechanism in a rough way by assuming various energy independent *s* to *d* enhancement factors and then recomputing the spectra. Their results for *s/d* = 5 are shown at the top of figure 11. Agreement with experiment was noticeably improved, but no rationalization of the factor used was offered.

c. Cu and Ni in Cu-Ni

Cu and Ni form a continuous series of solid solutions over the entire composition range; the lattice constant increasing by 2.7 percent from Ni to Cu. It is, therefore, an attractive system for studying the effects of substitutional disorder on the electronic structure of metals. Homogeneity is difficult to achieve, however, and for this reason some of the results presented here must be regarded with caution. (The question of homogeneity in Cu-Ni alloys has been reviewed by Seib and Spicer, 700846.) While not enough work has been done to permit intercomparison of soft x-ray results, sufficient other deep band probe studies have been made to warrant their summary. Presented here are: soft x-ray emission bands (SXS) (Clift et al., 639082); x-ray photoemission spectra (XPS) (Hüfner et al., 729038); ultraviolet photoemission (UPS) (Seib and Spicer, 700846 and 700847); soft x-ray $L_{2,3}$ absorption spectra (Van den Berg, 579055).

Clift et al. (639082) give (SXS) $M_{2,3}$ emission spectra of the pure metals and both components of the alloys, in 10 percent concentration steps across the composition range. No details of sample preparation were given. Some of their results are shown in figure 12, plotted as intensity versus photon energy. The spectra were excited with a 3.5 keV electron beam normally incident on the samples. X-ray takeoff was at 30° from the sample surface. Samples were water cooled. Pressure was approximately 1×10^{-6} torr. Photographic detection was used. The plotted curves were obtained by averaging densitometer traces of several exposures at 0.5 eV intervals and drawing a smooth curve through the points. Thus, even in the pure metals, detail such as that observed by Cuthill et al. (679300) for pure Ni and Dobbyn et al. for Cu (709080) is eliminated, and no light is shed on the interesting question of its survival or change with alloying.

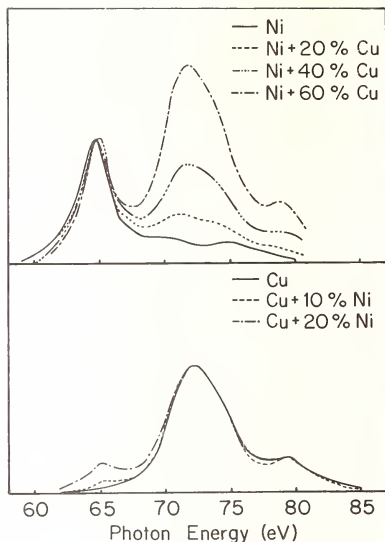


Figure 12. Cu and Ni in Cu-Ni. Soft x-ray $M_{2,3}$ spectra from a number of alloys and the pure metals.

Hüfner et al. (729038) XPS spectra of the valence bands of Cu, Ni, and 12, 44, 46, and 74 percent of Cu in Ni are shown in figure 13. Al $K_{\alpha 12}$ radiation was employed; resolution was approximately 1.0 eV. No details of sample preparation are given. Ar ion cleaning was employed prior to measurements.

The samples upon which Seib and Spicer (700846 and 700847) performed UPS measurements fall into three classes: 0, 13, and 23 percent Ni in Cu, single crystal, the alloys vacuum annealed at 1000 °C for 13 days and air quenched, all three cleaned in vacuum by heating to 600 °C; 0, 11, 19, and 49 percent Cu in Ni, polycrystalline, similarly heat treated, then cleaned in vacuum by successive Ar bombardments followed by 355 °C annealing; 39 and 62 percent Cu in Ni, no heat treatment, cleaned in vacuum like the latter. The alloys of 39, 49, and 62 percent Cu in Ni proved unsatisfactory in several respects and will not be discussed here. Figure 14 shows photoemission spectra from samples of 0, 13, and 23 percent Ni in Cu, taken with 10.2 eV photons; and 81, 89, and 100 percent Ni in Cu, taken with 10.0 eV photons. Resolution is about 0.2 eV.

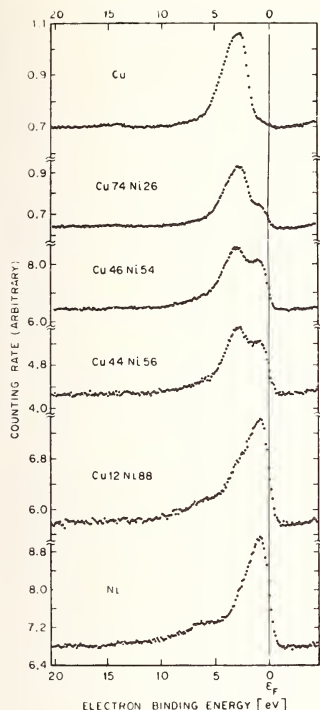


Figure 13. Cu and Ni in Cu-Ni. X-ray photoemission spectra of a number of Cu-Ni alloys.

Both Clift et al. and Hüfner et al. note that, to a good approximation, their results can be reproduced by superimposing the pure metal results. Seib and Spicer on the other hand assert that the Ni density of states is narrow (~ 1 eV) at low Ni concentrations and broadens to about 5 eV for pure Ni. There is reason to doubt the validity of this description at low Ni concentrations, however. Seib and Spicer base this assertion largely on an attempt to remove the Cu contribution to the observed spectra at 13 and 23 percent Ni by scaling the pure Cu spectrum to full experimental intensity for the alloys at -2.2 eV and subtracting. The resulting curves not only show a peak at about -1.0 eV, but an additional peak at -3.0 eV, together with a rather pathological, narrow minimum at -2.1 . Reducing the scale factor for Cu from full to about 0.7 of the experimental intensity at

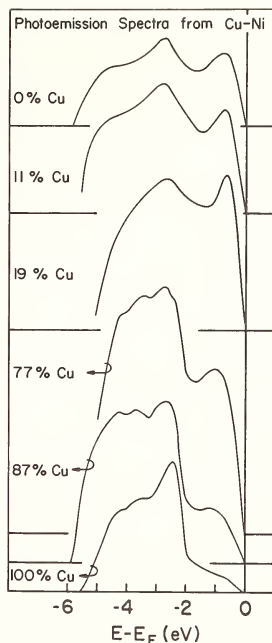


Figure 14. Cu and Ni in Cu-Ni. Ultraviolet photoemission spectra from several Cu-Ni alloys.

-2.2 largely removes the strange minimum and leaves an estimated Ni curve quite like that of pure Ni but with about a -0.2 eV chemical shift. Thus, it would appear that all three techniques can be reasonably construed to yield compatible results.

An additional interesting experimental observation is that of figure 15. Shown here are Van den Berg's (579055) measurements of the soft x-ray L absorption edge of Ni in pure Ni and 4 and 40 percent Ni in Cu. The striking feature here is the persistence of the strong peak at the edge, usually attributed to d holes above the Fermi level. This result is again consistent with those cited above, but the quality of the samples, described only as evaporated films, is open to question.

Finally, Wenger et al. (719033) have attempted to obtain a measure of the s - d charge at Ni sites in Cu-Ni alloys by measuring the integrated intensity of the Ni L_{α} emission band normalized to that of the Ni L_I line ($3s \rightarrow 2p^{3/2}$) at 20 percent intervals across the se-

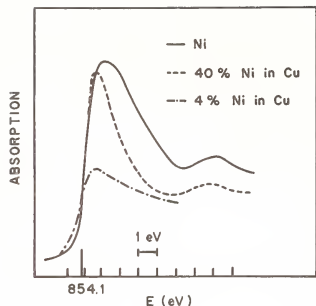


Figure 15. Ni in Cu-Ni. Soft x-ray L_{α} absorption spectra of Ni in pure Ni and two Cu-Ni alloys.

ries. They found it to be constant within experimental error. No details of sample preparation were given.

Further clarification of the experimental situation is needed, particularly at low Ni concentrations. SXS measurements should be particularly valuable here because of the partial resolution of the component emission spectra, but optimum resolution, linearity, and signal-to-noise ratio must be achieved if genuine improvements are to be made.

f. Li

Figure 16 compares Li K emission profiles recorded by Crisp and Williams (619025) and Crisp (619046), and Tomboulion and Bedo (589030). These two results are quite representative of the available literature. In each case, measurements were made on samples freshly evaporated in vacuum. Pressures were approximately 10^{-5} torr during evaporation and 10^{-6} during measurement. (More recent mea-

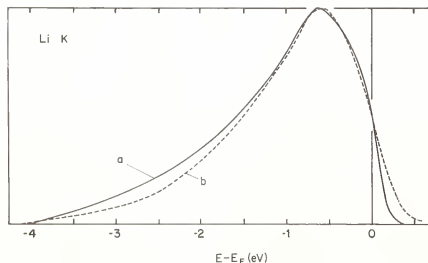


Figure 16. Li. Two measured soft x-ray Li K emission profiles: (a) Crisp and Williams, (b) Tomboulion and Bedo.

urements by Aita and Sagawa (699204), made under better vacuum, 10^{-7} to 10^{-8} torr, are compatible with these results.) Crisp and Williams used electromagnetic detection and ratemeter strip chart records. Tomboulion and Bedo used photographic detection. Sample temperature was stated by Tomboulion and Bedo as 162°C ; Crisp and Williams used a water-cooled sample but reported no temperature. In each case, the samples were metallic and retained bright metallic luster during the measurements. The only significant difference between the two profiles is in the high energy edge, the results of Crisp and Williams being noticeably sharper there. In this connection, it is worth noting differences in excitation conditions: Crisp and Williams, electron beam of 4 keV, incident at 90° , x-ray take-off $\sim 15^{\circ}$; Tomboulion and Bedo (589030), electron beam of 0.75 keV at 90° , x-ray takeoff of 45° . The sharper edge of Crisp and Williams appears to be a self-absorption artifact.

The pre-peaking of the Li K emission spectrum has not as yet received definitive explanation. It is certain that no band calculation based on Hartree-Fock type orbitals and using conventionally constructed crystal potentials will yield an early peak (McAlister, 699058). However, the new band calculation approach of Goddard (see O'Keefe and Goddard, 690254), using spin generalized rather than Hartree-Fock basis orbitals, does offer a natural one-electron explanation. Since the removal of core electron from Li constitutes an extremely large perturbation, screening effects have been plausibly invoked (Goodings, 659065; Allotey, 679087; Ausman and Glick, 699001). None of these approaches offers any explanation of the extreme overlap of the emission and absorption edges (Skinner and Johnston, 379000) and their Gaussian tails. McAlister (699058) has shown that folding one-electron estimates of the emission and absorption rates with a broad Gaussian smearing function yields good agreement with experiment. He attributes the Gaussian smear to thermal broadening of the K level by the phonon field but offers no rationalization of the large width (3 to 4 eV) needed for a good fit.

g. Mg

Numerous measurements have been made of the Mg $L_{2,3}$ emission spectrum, all showing a rather sharp peak just below the high energy emission edge. The three measurements of figure 17 are due to Watson et al. (689324), Neddermeyer (709115), and Fomichev (699089). In no case were tempera-

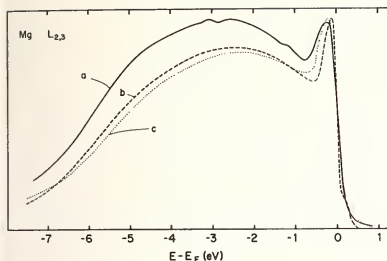


Figure 17. Mg. Three measured Mg $L_{2,3}$ soft x-ray emission profiles: (a) Watson et al., (b) Neddermeyer, (c) Fomichev.

tures stated, but water-cooled cathodes were used by Watson et al. and Fomichev. Electron beam excitation was used in each case: Watson et al., 3.0 keV; Neddermeyer, 2.0 keV; and Fomichev, not stated. None cite x-ray takeoff or electron impingement angles. Pressures cited were: Watson et al., 1×10^{-6} torr; Neddermeyer, $1-3 \times 10^{-8}$ torr; and Fomichev, not stated. All used blazed metal coated gratings; Watson et al. and Fomichev, Au coated; and Neddermeyer, Pt coated. Photoelectric detection was used in each case. Watson et al. summed many digitally recorded runs. Neddermeyer summed several strip chart recorded scans, and Fomichev used a single, stepped counting sweep. Neither Neddermeyer nor Fomichev cite noise figures for their data. Watson et al. plotted data with vertical bars representing the standard counting error, $\pm \sqrt{N}$, N being the total number of counts per channel. Their statistical noise level was sufficiently low that the small features at -1.3 and -2.9 eV appear real. Independent, unpublished measurements of Dimond, displayed by Watson et al. show like structure. An approximate theoretical analysis, similar to that by Rooke for Al (689153), was carried out by Watson et al. The analysis suggests a one-electron interpretation for the minimum at about -0.8 eV on their curve, and the feature at -1.3 eV. The analysis suggests no explanation for that at -2.9 . The calculated positions for the minimum and slope break are -0.9 and -1.7 eV respectively. The feature at -2.9 remains unexplained. Watson et al. suggest the possibility that it is an oxide structure. However, it shows no correlation with the Mg spectrum from bulk MgO [Neddermeyer (699355), Fomichev et al. (689249)].

See Al and Mg in Al-Mg.

i. Na

The measurements of the Na $L_{2,3}$ profile shown in figure 18 are due to Crisp and Williams (619025) and R. S. Crisp (619046), Skinner (409005), and Cady and Tomboulion (419001). Crisp and Williams used photoelectric detection and averaged several strip chart records. Rooke (689322) has produced a sum of digitally recorded scans made on the same instrument and in essential agreement with Crisp and Williams. Skinner used photographic recordings. A photographic measurement by Sen (569025) agrees well with Skinner. Cady and Tomboulion used photographic detection. All reported measurements were carried out at 1 to 5×10^{-6} torr, a pressure range over which Na at least retains its metallic luster. Temperatures were uncertain but all measurements were made on the solid. The sharp pip at the emission edge seen in Crisp and Williams, and Skinner (409005) (and by Rooke and Sen as well) is surely characteristic of measurements made at high excitation voltage and unfavorable excitation geometry. Cady and Tomboulion took experimental precautions at least as extensive as the other workers; their measurements of the Al and Mg $L_{2,3}$ profiles reported at the same time are in line with other

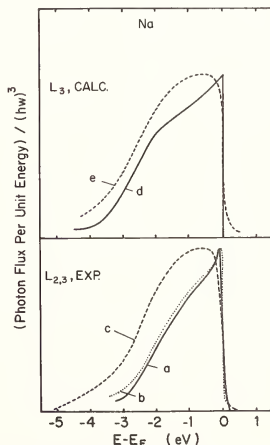


Figure 18. Na. Measured $L_{2,3}$ spectra: (a) Crisp and Williams, (b) Skinner, (c) Cady and Tomboulion. Theory: (d) many body profile; (e) band theory profile.

experimental results. However, they report an r.m.s. electron beam exciting voltage of 1.4 keV, while those of other workers range from 3.5 to 4.0 keV. Additionally, Haensel et al. (699094) have reported a measurement of the Na $L_{2,3}$ absorption profile which shows a distinct minimum approximately 0.2 eV below the midpoint of the L_3 edge. The pip in the data of Crisp and Williams, and Skinner occurs approximately 0.15 eV below the 50 percent point of the emission edge. Unfortunately, the absorption data extend only 0.6 eV below the midpoint of the edge, and only the shape of the absorption edge, not its absolute magnitude, is reported. These factors suggest that the edge pip may be a self-absorption artifact. Further experimental work is needed to clarify this point.

The importance of answering this question is emphasized by the two theoretical estimates shown in the upper part of figure 18. In figure 18 the solid curve *d* is the result of a many-body calculation by Glick et al. (689344). It includes in a natural way the effects of the core hole and final state interactions, and shows a distinct rise in intensity just at the Fermi edge. The broken curve *e* is a band theory estimate by McAlister (unpublished), with level broadening treated in the Landsberg approximation (499007). The latter would agree fairly well with experimental curve *c* (fig. 18) if a modest degree of energy dependent enhancement by core hole screening were assumed.

J. Ni

The L_3 emission profile of Ni has been studied by many investigators (Farineau, 389001; Skinner et al., 549020; Cauchois, 539002, for example), with considerable disagreement resulting. Van den Berg (579055) made the first progress in solving the problem by noting that the measured profile depended strongly on the energy of the exciting electron beam. More recently, Bonnelle (649057) and, particularly, Liefeld and coworkers (689330, 709116) have shown the disparities to arise from the fact that satellite intensity and self-absorption effects can be very important and depend markedly on exciting electron beam energy. In figure 19 are shown results of Liefeld (689330) and Chopra and Liefeld (649160) on the L_3 profile of Ni. Measurements were made at a sample temperature of about 800 °C, at approximately 1×10^{-7} torr in a two-crystal instrument. Various exciting electron beam voltages, V_x , were used. Curve *a* (fig. 19) is typical of results with V_x

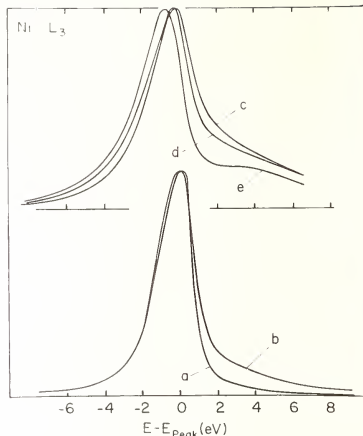


Figure 19. Ni. The Ni soft x-ray L_3 profile, measured at a number of exciting electron beam energies. The voltages are, in keV: (a) 0.86, (b) 0.92, (c) 2.0, (d) 5.1, (e) 12.5.

between the L_3 and L_2 threshold. For V_x above the L_2 threshold, holes can be created in the $2p^{1/2}$ core shell, and the Auger decay $2p^{1/2} \rightarrow 2p^{3/2}, v$, where v denotes a hole in the valence band, can occur. Radiative decay can then occur with a local, relatively high mass spectator hole in a $3d$ level, and high energy satellite structure appears, as in curve *b*. As one continues to raise V_x , the satellite structure increases in intensity, as in *c*. Eventually, as in curves *d* and *e*, self absorption becomes sufficiently strong to warp the measured profiles in a pronounced way. In fact, the L_3 absorption spectrum can be obtained by taking the ratio of profiles measured at two suitable values of V_x (Liefeld, 689330). Bonnelle (649057) independently demonstrated the dependence of self absorption on V_x and, in addition, showed how it can be reduced by optimizing x-ray takeoff and exciting electron beam incidence angles.

Various measurements of the Ni $M_{2,3}$ spectrum (Tomboulou and Bedo, 619081; Skinner et al., 549020; Clift et al., 639083; Cuthill et al., 679300) have shown better agreement, the situation being comparable to that shown above for the $M_{2,3}$ spectra of Cu. There are several probable causes for this. The $M_{2,3}$ measurements were made over a less extreme range of V_x , 2.5 to 4.0 keV. Also, as noted above for Cu, the M-valence band satellites tend to

be degenerate in energy with the M_2 band. And, finally, self absorption should be much less severe, owing to very broad and only gently structured $M_{2,3}$ absorption edges (Sonntag, 699356).

In figure 20, a number of deep band electronic structure probe results on Ni are compared; the M_3 profile of Cuthill et al. (679300), extracted from the $M_{2,3}$ complex in the manner described above for Cu; the L_3 profile, measured at L_3 threshold excitation by Liefeld (709116); the ultraviolet induced photoemission optical density of states of Eastman and Krolikowski (689211), the XPS spectrum of Fadley and Shirley (689234), and the ion neutralization unfold function of Hagstrum and Becker (679195). Here, as in the case of Cu discussed above, remarkably strong structural correlations are observed, despite differences in magnetic state. The soft x-ray measurements were made on paramagnetic Ni (at 960 °C for the M , 800 °C for the L) while the photoemission and ion neutralization measurements were made at room temperature on ferromagnetic samples. Figure 21 compares the M_3 profiles of

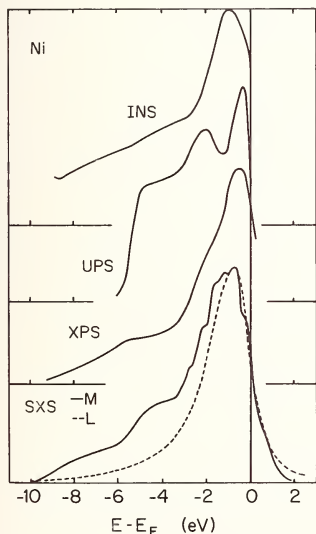


Figure 20. Comparison of various deep probe results for Ni. Lowest curves, soft x-ray L and M emission spectra (SXS). X-ray photoemission spectrum (XPS); ultraviolet photoemission optical density of states (UPS); ion neutralization unfold function (INS).

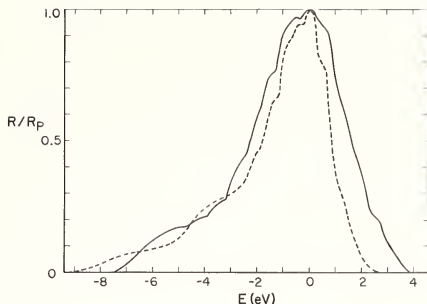


Figure 21. Ni and Cu. Comparison of Ni- and Cu- $M_{2,3}$ emission bands, showing structural correlation.

Cu (Dobbyn et al., 709080) and paramagnetic Ni (Cuthill et al., 679300). Structural correlation between the two spectra is evident and to be expected from their common crystal structure and valence difference of 1. Note, however, the slight shoulder on the high energy side of the d -hump in both spectra. Similar structure has been noted by the present authors in unpublished measurements of the M spectra of Cr and Fe. Liefeld and Hanzely (709116) also report like structure in their threshold measurements of the L_3 spectra of Cu, Ni, Co, and Fe. These have been plausibly interpreted as excitation features (Dobbyn, 709080; Liefeld, 709116) of the type described by Parratt (599072).

k. Ni in Cu-Ni

See Cu and Ni in Cu-Ni.

3. Annotated Spectral Index

3.1. Guide to the Index

This section contains an annotated index to soft x-ray emission spectra from metallic systems. As far as possible, it is complete for the literature published through 1970, with many later papers included as well. The papers are grouped according to the principal quantum number of the inner level involved (K , L , M , ... for $n = 1, 2, 3, \dots$). Within these groups, the listing is alphabetical by material (with all components of an alloy permuted). The papers are annotated according to type (E , T , or R for experiment,

theory, or review) and to content, the various properties (e.g., 5D for state density, 9S for satellite structure) being listed in appendix 1. A guide to journal name and special publication abbreviations is given in appendix 2. The year of publication is indicated by the first two digits of the file number. Boldface italics has been used to designate the elements from which spectra have been obtained. (Elements are normally denoted by chemical symbol. Occasionally, classes of materials are studied (for example, rare earths), and special class designations are used. These are listed in app. 3.) Concentrations are rounded to the nearest integer or zero. For binaries,

the composition always applies to the constituent occurring first in alphabetic order. For three or more constituents, additional entries appear, the second entry giving the concentration of the element second in alphabetic order, the third entry giving the concentration of the third in alphabetic order, etc. Specimen temperature or temperature range is assumed to be room temperature unless specified otherwise by footnote. This section closes with an index to sources of spectra, arranged alphabetically by author (all authors permuted). Included here are all references from the text above, including those which would not otherwise be listed.

3.2. Index by Inner Shell

a. K-Spectra

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Parratt L	2	PHYS REV	84	362	519013	R	9K 00			
Friedel J	1	PHIL MAG	43	153	520032	R	9K 9F 5B			
Karalnik S	1	RONTGENCHEMBIND		166	669205	R	5N 9K 9L 5B			
Faessler A	1	SKS BANDSPECTRA		93	689328	T	9K 9C			
Parratt L	1	PHYS REV	49	502	369002	E	9K 9S 00	A		
Parratt L	1	PHYS REV	50	1	369003	E	9K 9S 00	A		
Gokhale B	1	COMPT REND	233	937	519008	E	9K 4A	Ag		
Gokhale B	1	ANN PHYSIQUE	7	852	529013	E	9K 4A 6L 5B	Ag		
Tomlin S	1	AUSTRAL J PHYS	17	452	649121	E	9K 9I 9B 9R	Ag		
Fischer B	2	Z PHYSIK	204	122	679137	E	9K 9H 9I 4X	Ag		
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	AgAl	00	70
Fischer D	2	ADV XRAY ANALYS	10	374	679041	E	9K 9S 9I 6P 4L	AgAl		50
Baun W	2	J APPL PHYS	38	2092	679108	E	9S 9I 9K	AgAl		50
Nemnonov S	2	PHYS METALMETAL	28	192	699145	E	9K	AgAl		67
Nemnonov S	4	PHYS STAT SOLID	43	319	719055	E	9K	AgAl		20
Farineau J	1	ANN PHYS	10	20	389001	E	9K 0L	Al		
Cauchois Y	1	ACTA CRYST	6	352	539003	E	9K	Al		
Das Gupta K	3	J SCI INDUS RES	14B	129	559005	E	9K 9L	Al		
Nordfors B	1	PROC PHYS SOC	68A	654	559017	E	9K 9S 9I 4L	Al		
Nordfors B	1	ARKIV FYSIK	10	279	569024	E	9K 9S 9I 9R 4L	Al		
Sen A	1	INDIAN J PHYS	30	415	569025	E	9L 9K 5B	Al		
Nemnonov S	2	BULLACADSCIUSSR	25	1015	619059	E	9A 9K	Al		
Cauchois Y	3	COMPT REND	257	1051	639092	E	9C 9K 0S 5B	Al		
Cauchois Y	3	COMPT REND	257	1242	639093	E	9C 9A 9B 9K 6S	Al		
Kurylenko C	1	CAHIERS PHYS	17	344	639121	E	9K 0L	Al		
Nagakura I	1	SCI REP TOHOKUU	48	90	649007	E	9K 9S	Al		100
Konstantinov A	3	BULLACADSCIUSSR	28	103	649119	E	9C 9K 9R	Al		
Tomlin S	1	AUSTRAL J PHYS	17	452	649121	E	9K 9I 9B 9R	Al		
Baun W	2	PHYS LET	13	36	649133	E	9K 9S 9I	Al		
Fischer D	2	J APPL PHYS	36	534	659070	E	9K 9S	Al		100
Cauchois Y	2	OPTPROPS ABELES		83	659083	E	9A 9K	Al		100
Fischer D	2	PHYS REV	138	1047	659090	E	9K 0L 4B	Al		
Senemaud C	1	J PHYSIQUE COLL	27	55	669055	E	9K 9C	Al		
Kurylenko C	1	CAHIERS PHYS	20	333	669130	E	9K 0L	Al		100
Bonnelle C	3	RONTGENCHEMBIND		20	669139	E	9E 9C 9K	Al		100

First two digits of "Reference Number" indicates year.

a. K-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Senemaud C	1	J PHYS RADIUM	27C	55	669142	E	9A 9K 9C 4L 9R	Al		
Demjoohin W	2	RONTGENCHEMBIND		58	669149	E	9K 9S 9I 4L 4A	Al		100
Domaschew E	2	RONTGENCHEMBIND		70	669177	E	9K 9S 9I 4L	Al		100
Fomichev V	1	SOVPHYS SOLIDST	8	2312	679102	E	9A 9L 6O 5D 9R	Al		
Nemoshkalenk V	2	UKRAIN PHYS J	12	812	679107	E	9K 9S	Al		100
Fischer B	2	Z PHYSIK	204	122	679137	E	9K 9H 9I 4X	Al		
Demekhin V	2	BULLACADSCIUSSR	31	921	679162	E	9S 9I 9K	Al		
Laputina I	2	BULLACADSCIUSSR	31	926	679163	E	9K 9C 9S 5B 0O	Al		
Senemaud C	1	COMPT REND	265	403	679240	E	9K 9C	Al		
Fischer D	2	NORELCO REPORTR	14	92	679387	R	9K 9S	Al		100
Rooke G	1	J PHYS	1C	767	689153	T	9L 9K 5D 9T	Al		
Demekhin V	2	PHYS METALMETAL	26	178	689237	E	9K 9C 9S 4A 4L	Al		
Dodd C	2	J APPL PHYS	39	5377	689319	E	9K 0O	Al		100
Wiech G	1	SXS BANDSPECTRA		59	689325	E	9L 5D 5B	Al		
							9K 5D 5B	Al		
Cauchois Y	1	SXS BANDSPECTRA		71	689326	E	9K	Al		
Nemoshkalenk V	4	UKRAIN PHYS J	13	837	699109	R	9K 9L	Al		100
Nemnonov S	2	PHYS METALMETAL	28	192	699145	E	9K	Al		100
Aita O	2	J PHYS SOC JAP	27	164	699204	E	9K 5B	Al		100
Nemnonov S	2	PHYS METALMETAL	28	68	699218	R	9K 5D	Al		
							9L 5D	Al		
Nemoshkalenk V	2	UKRAIN PHYS J	13	1022	699240	E	9K 4L 9U 4A	Al		100
Maruno S	2	JAP J APPL PHYS	9	1428	709234	E	9K 4A	Al		100
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9K	Al		100
Nemnonov S	3	PHYS METALMETAL	30	211	709351	E	9K 9L	Al		100
							9K 9L	Al		100
Smrcka L	1	CZECH J PHYS	21B	683	719187	T	9K 9L 5D	Al		100
Senemaud C	2	J PHYSIQUE	32S	193	719205	E	9K	Al		100
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	AlAg	00	70
Fischer D	2	ADV XRAY ANALYS	10	374	679041	E	9K 9S 9I 6P 4L	AlAg		50
Baun W	2	J APPL PHYS	38	2092	679108	E	9S 9I 9K	AlAg		50
Nemnonov S	2	PHYS METALMETAL	28	192	699145	E	9K	AlAg		67
Nemnonov S	4	PHYS STAT SOLID	43	319	719055	E	9K	AlAg		20
Fischer D	2	ADV XRAY ANALYS	10	374	679041	E	9K 9S 9I 6P 4L	AlAs		50
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	AlAu		50
Fischer D	2	ADV XRAY ANALYS	10	374	679041	E	9K 9S 9I 6P 4L	AlAu		50
Baun W	2	J APPL PHYS	38	2092	679108	E	9S 9I 9K	AlAu		50
Nemnonov S	2	PHYS METALMETAL	28	192	699145	E	9K	AlAu		67
Nemnonov S	4	PHYS STAT SOLID	43	319	719055	E	9K	AlAu		67
Gwinner E	2	Z PHYSIK	107	449	379001	E	9K 4A 4B 4N	AlB		33
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	AlB		08
Ehlert R	2	ADV XRAY ANALYS	9	456	669241	E	9K	AlB		08
Fischer D	2	J CHEM PHYS	43	2075	659092	E	9K 4A	AlC		57
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	AlC		57
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	AlC		57
							9K 9S	AlCa		50
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	AlCa		67
							9K 9L	AlCe		67
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	AlCo		50
Fischer D	2	ADV XRAY ANALYS	10	374	679041	E	9K 9S 9I 6P 4L	AlCo		50
Nemoshkalenk V	3	AKADNAUKUR RPT		151	709357	E	9K	AlCo		
Nemnonov S	2	BULLACADSCIUSSR	25	1015	619059	E	9A 9K	AlCr		33
Menshikov A	2	BULLACADSCIUSSR	27	402	639116	E	9K 9S 3Q	AlCr	33	80
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	AlCr		50
Fischer D	2	ADV XRAY ANALYS	10	374	679041	E	9K 9S 9I 6P 4L	AlCr		50
Kolobova K	2	PHYS METALMETAL	27	69	699351	R	9K	AlCr	33	80

a. K-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Yoshida S	1	INSTPHYSCHMRES	28	243	369007	E	9K	AlCu	10	100
Farineau J	1	J PHYS RADIUM	10	327	399007	E	9K	AlCu	19	100
Cauchois Y	1	COMPT REND	231	574	509000	E	9K 6P	AlCu		10
Friedel J	1	PHIL MAG	43	153	520032	R	9A 9K 5N 6P	AlCu		
Kurylenko C	1	CAHIERS PHYS	20	333	669130	E	9K	AlCu	10	100
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	AlCu	10	100
Fischer D	2	ADV XRAY ANALYS	10	374	679041	E	9K 9S 9I 6P 4L	AlCu	10	100
Baun W	2	J APPL PHYS	38	2092	679108	E	9S 9I 9K 5B 4L	AlCu	10	100
Fischer D	2	NORELCO REPORTR	14	92	679387	R	9K	AlCu	20	100
Nemnonov S	2	PHYS METALMETAL	28	192	699145	E	9K	AlCu	33	67
Baun W	1	J APPL PHYS	40	4210	699174	E	9K 9F 4L	AlCu		49
Solomon J	2	APPL SPECTRY	25	719192	E	9K		AlCu		40
Cauchois Y	1	COMPT REND	231	574	509000	E	9K 6P	AlCuMg	94	95
								AlCuMg		04
								AlCuMg	01	02
Vainshtein E	2	SOV PHYS DOKL	1	527	569031	E	9K	AlCuMg		17 (1)
								AlCuMg		67 (1)
								AlCuMg		16 (1)
Kotlyar B	2	NAUCH ZAPISKI	22	71	589014	E	9K	AlCuMn	08	25
								AlCuMn	50	79
								AlCuMn	23	25
Kotlyar B	1	NAUCH ZAPISKI	22	60	589015	E	9K 2T	AlCuMn		25
								AlCuMn		50
								AlCuMn		25
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	AlDy		67
							9K 9L	AlEr		67
Nemnonov S	2	BULLACADSCIUSSR	25	1015	619059	E	9A 9K	AlFe		25
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	AlFe	10	100
Fischer D	2	ADV XRAY ANALYS	10	374	679041	E	9K 9S 9I 6P 4L	AlFe	25	75
Fischer D	2	J APPL PHYS	38	229	679096	E	9K 9S	AlFe	00	100
Nemoshkalenk V	3	PHYS STAT SOLID	29	45	680711	E	9K	AlFe		67
Nemoshkalenk V	2	UKRAIN PHYS J	13	1022	699240	E	9K 4L 9U 4A 3Q	AlFe	25	72
Kolobova K	2	PHYS METALMETAL	27	69	699351	R	9K	AlFe	25	75
							9K	AlFe		50
Nemoshkalenk V	2	AKADNAUKUKR RPT		130	709356	E	9K	AlFe		
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	AlCd		67
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	AlHf		50
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	AlLa		67
Crisp R	1	THESIS U W AUST		1	619046	E	9L 0I	AlLi		
							9K 0I	AlLi		
Farineau J	1	ANN PHYS	10	20	389001	E	9K	AlMg	40	60
Cauchois Y	1	COMPT REND	231	574	509000	E	9K 6P	AlMg	90	99
Kurylenko C	1	CAHIERS PHYS	20	333	669130	E	9K	AlMg		62
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	AlMg	10	100
Fischer D	2	ADV XRAY ANALYS	10	374	679041	E	9K 9S 9I 6P 4L	AlMg	10	100
Fischer D	2	NORELCO REPORTR	14	92	679387	R	9K	AlMg	30	100
Neddermey H	1	PHYS LET	38A	329	729045	E	9K 9L	AlMg	40	60
Neddermey H	1	BAND STRU SPECT		153	739002	E	9K 9L	AlMg	05	60
Cauchois Y	1	COMPT REND	231	574	509000	E	9K 6P	AlMgSi		97
								AlMgSi		91
								AlMgSi		02
Fischer D	2	J CHEM PHYS	43	2075	659092	E	9K 4A	AlN		50
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	AlN		50
Domaschew E	2	RONTGENCHEMBIND		70	669177	E	9K 9S 9I 4L	AlN		50
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	AlN		50

(1) 40 °C to 300 °C

a. K-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Fomichev V	1	SOVPHYS SOLIDST	10	597	689224	E	9L 6G 4L 5D 6T 9K 6G 4L 5D 6T	AIN AIN		50
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9K	AIN		50
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	AINd		67
Farineau J	1	J PHYS RADIUM	10	327	399007	E	9K 9L	AINi AINi	18 00	100 89
Nemnonov S	2	BULLACADSCIUSSR	25	1015	619059	E	9A 9K	AINi		25
Fischer D	2	PHYS REV	145	555	669148	E	9K 9S 9I 4L 5B	AINi	4	100
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	AINi	04	100
Fischer D	2	ADV XRAY ANALYS	10	374	679041	E	9K 9S 9I 6P 4L	AINi	41	100
Fischer D	2	NORELCO REPORTR	14	92	679387	R	9K	AINi	20	100
Nemnonov S	4	PHYS STAT SOLID	43	319	719055	E	9K	AINi		60
O Bryan H	2	PROC ROY SOC	176A	229	409003	E	9K 5B 4L 00	AIO		40
Nordfors B	1	PROC PHYS SOC	68A	654	559017	E	9K 9S 9I 4L	AIO		40
Nordfors B	1	ARKIV FYSIK	10	279	569024	E	9K 9S 9I 9R 4L	AIO		40
Nemnonov S	2	BULLACADSCIUSSR	25	1015	619059	E	9A 9K	AIO		40
Baun W	2	PHYS LET	13	36	649133	E	9K 9S 9I	AIO		40
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 00	AIO		40
Fischer D	2	J APPL PHYS	36	534	659070	E	9K 9S	AIO		40
Fischer D	2	J APPL PHYS	37	768	669025	E	9K	AIO		40
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	AIO		40
Senemaud C	1	J PHYSIQUE COLL	27	55	669055	E	9K 9G	AIO		40
Bonnelle C	3	RONTGENCHEMBIND		20	669139	E	9E 9G 9K	AIO		40
Senemaud C	1	J PHYS RADIUM	27C	55	669142	E	9A 9K 9G 4L 9R	AIO		40
Demjohin W	2	RONTGENCHEMBIND		58	669149	E	9K 9S 9I 4L 4A	AIO		40
Domaschew E	2	RONTGENCHEMBIND		70	669177	E	9K 9S 9I 4L	AIO		40
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	AIO		40
Fischer D	2	ADV XRAY ANALYS	10	374	679041	E	9K 9S 9I 6P 4L	AIO		40
Fomichev V	1	SOVPHYS SOLIDST	8	2312	679102	E	9A 9K 4L 5D 9R	AIO		40
Nemoshkalen V	2	UKRAIN PHYS J	12	812	679107	E	9K 9S	AIO		40
Demekhin V	2	BULLACADSCIUSSR	31	921	679162	E	9S 9I 9K	AIO		40
Senemaud C	1	COMPT REND	265	403	679240	E	9K 9G	AIO		40
Fischer D	2	NORELCO REPORTR	14	92	679387	R	9K 9S	AIO		40
Utriainen J	5	Z NATURFORSCH	23A	1178	689210	E	9I 9K 9S 9G	AIO	40	100
Demekhin V	2	PHYS METALMETAL	26	178	689237	E	9K 9G 9S 4A 4L	AIO		40
Dodd C	2	J APPL PHYS	39	5377	689319	E	9K 00 9S	AIO		40
Cauchois J	1	SXS BANDSPECTRA		71	689326	E	9K	AIO		40
Chun H	2	PHYS LET	28A	334	689357	E	9K 4N 9K	AIO AIO		40 40
Rumsh M	4	VESTNIKLEN UNIV	16	49	689371	E	9K 9A 9L 9A	AIO AIO		40 40
Bonnelle C	2	COMPT REND	268	65	699027	E	9K 9S	AIO		40
Nemoshkalen V	4	UKRAIN PHYS J	13	837	699109	R	9K 9L	AIO		40
Nemnonov S	2	PHYS METALMETAL	27	51	699115	R	9K 9S 3Q	AIO		40
Chun H	2	Z NATURFORSCH	24A	930	699133	E	9K 9F 6U 6P 9K 9L	AIO AIO		40 40
Chun H	1	PHYS LET	31A	118	709005	E	9K 9S 4L 00	AIO	40	100
Gigl P	3	JELECTROCHEMSOC	117	15	709041	E	9K 4L	AIO		40
Maruno S	2	JAP J APPL PHYS	9	1428	709234	E	9K 4A	AIO		40
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9K	AIO		40
Domaschew E	2	RONTGENCHEMBIND		70	669177	E	9K 9S 9I 4L	AIP		50
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	AIP		50
Fischer D	2	ADV XRAY ANALYS	10	374	679041	E	9K 9S 9I 6P 4L	AIP		50
Wiech G	1	Z PHYSIK	216	472	689248	E	9L 9K 5B	AIP		50
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	AIPr		67

a. K-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Nemnonov S	4	PHYS STAT SOLID	43	319	719055	E	9K	AlPt		67
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	AlS		50
Domaschew E	2	RONTGENCHEMBIND		70	669177	E	9K 9S 9I 4L	AlSb		50
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	AlSb		50
Fischer D	2	ADV XRAY ANALYS	10	374	679041	E	9K 9S 9I 6P 4L	AlSb		50
Nemnonov S	5	PHYS METALMETAL	14	51	629124	R	9A 9K 3O 5W	AlT		
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	AlTi	25	100
Fischer D	2	ADV XRAY ANALYS	10	374	679041	E	9K 9S 9I 6P 4L	AlTi		50
Kolobova K	2	PHYS METALMETAL	27	69	699351	E	9A 9K 9C 9I 9S	AlTi	0	75
Fischer D	2	J APPL PHYS	38	2404	679122	E	9K 9S 9I 4L 5B	AlX		
Gigl P	3	JELECTROCHEMSOC	117	15	709041	E	9K 4L 0O	AlX		
Maruno S	2	JAP J APPL PHYS	9	1428	709234	E	9K 4A 0O	AlX		
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	AlZr	25	100
Fischer D	2	ADV XRAY ANALYS	10	374	679041	E	9K 9S 9I 6P 4L	AlZr	25	75
Shaw C	2	PHYS REV	50	1006	369006	E	9S 9K	As		
Groven L	2	BULLACADROYBELG	37	630	519009	E	9K 9S 9I 5B 0O	As		
Fischer D	2	ADV XRAY ANALYS	10	374	679041	E	9K 9S 9I 6P 4L	AsAl		50
Slivinsky V	2	PHYS LET	29A	463	699110	E	9I 9K 9C	Au		
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	AuAl		50
Fischer D	2	ADV XRAY ANALYS	10	374	679041	E	9K 9S 9I 6P 4L	AuAl		50
Baun W	2	J APPL PHYS	38	2092	679108	E	9S 9I 9K	AuAl		50
Nemnonov S	2	PHYS METALMETAL	28	192	699145	E	9K	AuAl		67
Nemnonov S	4	PHYS STAT SOLID	43	319	719055	E	9K	AuAl		67
Gwinner E	2	Z PHYSIK	107	449	379001	E	9K 4A 4B 4N	B		100
Skinner H	1	PHILTRANSROYSOC	239A	95	409005	E	9K	B		
Crisp R	2	PHIL MAG	6	365	619025	E	9K	B		
Crisp R	1	THESIS U W AUST		1	619046	E	9K 0I	B		100
Tomlin S	1	AUSTRAL J PHYS	17	452	649121	E	9K 9I 9B 9R	B		
Henke B	2	J APPL PHYS	37	922	669013	E	9K 9C	B		
Fischer D	2	J APPL PHYS	37	768	669025	E	9K	B		99
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	B		100
Ehlert R	2	ADV XRAY ANALYS	9	456	669241	E	9K	B		100
Holliday J	1	ADV XRAY ANALYS	9	365	669246	E	9K	B		100
Hayasi T	2	SCI REP TOHOKUU	50	228	679151	E	9K 0I	B		
Fomichev V	1	BULLACADSCIUSSR	31	972	679172	E	9A 9K 9V	B		
Fischer D	2	NORELCO REPORTR	14	92	679387	R	9K 9R	B		100
Holliday J	1	NORELCO REPORTR	14	84	679388	R	9K	B		100
Hayasi Y	1	SCI REP TOHOKUU	51	43	689367	E	9K 6P	B		100
Aita O	2	J PHYS SOC JAP	27	164	699204	E	9K 5B	B		100
Hoffmann L	3	Z PHYSIK	229	131	699264	E	9K 9I 9R 0S 7D	B		
Hayasi T	2	X RAY CONF KIEV	1	307	699286	R	9E 9K	B		
Frantsevi A	3	SOV PHYS DOKL	15	970	719050	E	9K 3Q	B		100
Shashkina T	1	PHYS STAT SOLID	44B	571	719097	E	9K 9I	B		100
Feser K	4	J PHYSIQUE	32S	331	719209	E	9K 6S 0O	B		100
Feser K	4	MUNICH SYMP			739016	E	9K 6S	B		100
Gwinner E	2	Z PHYSIK	107	449	379001	E	9K 4A 4B 4N	B Al		33
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	B Al		08
Ehlert R	2	ADV XRAY ANALYS	9	456	669241	E	9K	B Al		08
Gwinner E	2	Z PHYSIK	107	449	379001	E	9K 4A 4B 4N	B C		50
Fischer D	2	J APPL PHYS	37	768	669025	E	9K	B C		80
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	B C		80
Ehlert R	2	ADV XRAY ANALYS	9	456	669241	E	9K	B C		80
Hayasi T	2	SCI REP TOHOKUU	50	228	679151	E	9K 0I	B C		80
Hayasi Y	1	SCI REP TOHOKUU	51	43	689367	E	9K 3Q 9S 6P	B C		80
Gwinner E	2	Z PHYSIK	107	449	379001	E	9K 4A 4B 4N	B Ca		86
							9K 4A 4B 4N	B Ce		86

a. K-Spectra-Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Menshikov A	2	BULLACADSCIUSSR	27	402	639116	E	9K 9S 3Q	B Cr	50	67
Menshikov A	2	PHYS METALMETAL	19	52	659088	E	9A 9K 9C 2S 2B	B Cr	50	67
Nemmonov S	4	PHYS METALMETAL	25	107	689194	E	9K 9S 5B	B Cr	50	67
Cuthill J	4	NBS TECH NOTE	565	11	710591	E	9K 5D	B Cr		67
Frantsevi A	3	SOV PHYS DOKL	15	970	719050	E	9K 3Q	B Cr		67
Mc Alister A	4	MUNICH SYMP			739018	E	9K 5B	B Cr		67 (1)
Frantsevi A	3	SOV PHYS DOKL	15	970	719050	E	9K 3Q	B Hf		67
Gwinner E	2	Z PHYSIK	107	449	379001	E	9K 4A 4B 4N	B La		86
Shashkina T	1	PHYS STAT SOLID	44B	571	719097	E	9K 9I	B Mn	20	67
Gwinner E	2	Z PHYSIK	107	449	379001	E	9K 4A 4B 4N	B N		50
O Bryan H	2	PROC ROY SOC	176A	229	409003	E	9K 5B 4L 0O	B N		50
Holliday J	1	J APPL PHYS	33	3259	629095	E	9K	B N		50
Lukirskii A	3	OPT SPECTR	16	372	649115	E	9K	B N		50
Nicholson J	2	XRAY ANALYS	7	497	649163	E	9K 0I	B N		50
Fischer D	2	J CHEM PHYS	43	2075	659092	E	9K 4A	B N		50
Fischer D	2	J APPL PHYS	37	768	669025	E	9K	B N		50
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	B N		50
Holliday J	1	RONTGENCHEMBIND		139	669203	E	9K 4L 4A	B N		50
Henke B	1	ADV XRAY ANALYS	9	430	669244	E	9K 0I	B N		50
Holliday J	1	ADV XRAY ANALYS	9	365	669246	E	9K 4L	B N		50
Hayasi T	2	SCI REP TOHOKUU	50	228	679151	E	9K 0I	B N		50
Fomichev V	1	BULLACADSCIUSSR	31	972	679172	E	9A 9K 9V	B N		50
							9A 9K 9V	B N		50
Fischer D	2	NORELCO REPORTR	14	92	679387	R	9K 9R	B N		50
Holliday J	1	NORELCO REPORTR	14	84	679388	E	9K	B N		50
Fomichev V	2	J PHYS CHEM SOL	29	1015	689140	E	9K 3N 6H	B N		50
Hayasi Y	1	SCI REP TOHOKUU	51	43	689367	E	9K 3Q 9S 6P	B N		50
Rumsh M	4	VESTNIKLEN UNIV	16	49	689371	E	9K 9A	B N		50
Hayasi T	2	X RAY CONF KIEV	1	307	699286	R	9E 9K 3Q	B N		50
Zhurakovs E	2	SOV PHYS DOKL	14	710	709183	E	9K 4L 3Q	B N		50
Nemoshkalenk V	2	SOVPHYS SOLIDST	12	46	709196	R	9K 5D	B N		50
Fomichev V	3	SOVPHYS SOLIDST	12	123	709217	E	9K 9S 6G 0O	B N		50
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9K	B N		50
Nakhmanso M	2	SOVPHYS SOLIDST	12	1966	719042	T	9A 9K	B N		50
Frantsevi A	3	SOV PHYS DOKL	15	970	719050	E	9K 3Q	B N		50
Fomichev V	1	SOVPHYS SOLIDST	13	754	719170	R	9A 9K	B N		50
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	B Nb		67
Frantsevi A	3	SOV PHYS DOKL	15	970	719050	E	9K 3Q	B Nb		67
Gwinner E	2	Z PHYSIK	107	449	379001	E	9K 4A 4B 4N	B O		40
O Bryan H	2	PROC ROY SOC	176A	229	409003	E	9K 5B 4L 0O	B O		40
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 0O	B O		40
Henke B	2	J APPL PHYS	37	922	669013	E	9K 9G 4L	B O		40
Fischer D	2	J APPL PHYS	37	768	669025	E	9K	B O		40
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	B O		40
Henke B	1	ADV XRAY ANALYS	9	430	669244	E	9K 0I	B O		40
Hayasi T	2	SCI REP TOHOKUU	50	228	679151	E	9K 0I	B O		40
Fischer D	2	NORELCO REPORTR	14	92	679387	R	9K 9R	B O		40
Hayasi Y	1	SCI REP TOHOKUU	51	43	689367	E	9K 3Q 9S 6P	B O		40
Hayasi T	2	X RAY CONF KIEV	1	307	699286	R	9E 9K 3Q	B O		40
Fomichev V	3	SOVPHYS SOLIDST	12	123	709217	E	9K 9S 6G	B O		40
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9K	B O		40
Nakhmanso M	2	SOVPHYS SOLIDST	12	1966	719042	T	9A 9K	B O		40
Frantsevi A	3	SOV PHYS DOKL	15	970	719050	E	9K 3Q	B O		40
Fischer D	2	J APPL PHYS	37	768	669025	E	9K	B P		50

(1) 870 °C

a. K-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	B P		50
Fomichev V	3	J PHYS CHEM SOL	29	1025	689141	E	9K 6H 6U	B P		50
							9L 6H 6U	B P		50
Wiech G	1	Z PHYSIK	216	472	689248	E	9L 9K 5B	B P		50
Rumsh M	4	VESTNIKLEN UNIV	16	49	689371	E	9K 9A	B P		50
							9L 9A	B P		50
Nemoshkalen V	2	SOVPHYS SOLIDST	12	46	709196	R	9L 9K 5D	B P		
Zhurakovs E	3	SOV PHYS DOKL	11	814	679117	E	9G 9K 4L 5B 9F	B Se		50
Cuthill J	4	NBS TECH NOTE	565	11	710591	E	9K 5D	B Se		67
Mc Alister A	4	MUNICH SYMP			739018	E	9K 5B	B Se		67 (1)
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	B Si		86
Nemnonov S	5	TRANSMETSOCAIME	245	1191	699104	R	9K 9A 9L 5D 3Q	B T		67
Frantsevi A	3	SOV PHYS DOKL	15	970	719050	E	9K 3Q	B Ta		67
Zhurakovs E	2	SOV PHYS DOKL	4	1308	599067	R	9K 9S	B Ti	50	67
Fischer D	2	J APPL PHYS	37	768	669025	E	9K	B Ti		67
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	B Ti		67
Nemnonov S	2	PHYS METALMETAL	22	36	669141	E	9A 9K 3Q 9I 9S	B Ti		67
Holliday J	1	RONTGENCHEMBIND		139	669203	E	9L 9I 4L	B Ti		67
							9K 4L 4A	B Ti		67
Ehlert R	2	ADV XRAY ANALYS	9	456	669241	E	9K	B Ti		67
Holliday J	1	ADV XRAY ANALYS	9	365	669246	E	9L 4L	B Ti		67
							9K 4L	B Ti		67
Nemnonov S	1	PHYS METALMETAL	24	66	679213	R	9K 9L	B Ti		67
Holliday J	1	NORELCO REPORTR	14	84	679388	E	9L	B Ti		67
							9K	B Ti		67
Nemnonov S	4	PHYS METALMETAL	25	107	689194	E	9K 9S 5B	B Ti		67
Ramqvist L	5	J PHYS CHEM SOL	30	1849	699087	E	9A 9K 3O 3Q	B Ti		67
Cuthill J	4	NBS TECH NOTE	565	11	710591	E	9K 5D	B Ti		67
Frantsevi A	3	SOV PHYS DOKL	15	970	719050	E	9K 3Q	B Ti		67
Mc Alister A	4	MUNICH SYMP			739018	E	9K 5B	B Ti		67 (2)
Dzeganovskii V	2	SOV PHYS DOKL	11	349	669144	E	9K 9C 3Q 4L	B V	50	67
Holliday J	1	NORELCO REPORTR	14	84	679388	R	9K	B V		67
Cuthill J	4	NBS TECH NOTE	565	11	710591	E	9K 5D	B V		67
Frantsevi A	3	SOV PHYS DOKL	15	970	719050	E	9K 3Q	B V		67
Mc Alister A	4	MUNICH SYMP			739018	E	9K 5B	B V		67 (3)
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	B W		71
							9K 6P	B Zr		67
Holliday J	1	RONTGENCHEMBIND		139	669203	E	9K 4L 4A	B Zr		67
Holliday J	1	ADV XRAY ANALYS	9	365	669246	E	9K 4L	B Zr		67
Hayasi T	2	SCI REP TOHOKUU	50	228	679151	E	9K 0I	B Zr		67
							9M 0I	B Zr		67
Holliday J	1	NORELCO REPORTR	14	84	679388	R	9K	B Zr		67
Hayasi Y	1	SCI REP TOHOKUU	51	43	689367	E	9K 3Q 9S 6P	B Zr		33
							6P 9M	B Zr		33
Frantsevi A	3	SOV PHYS DOKL	15	970	719050	E	9K 3Q	B Zr		67
Kolobova K	3	SOVPHYS SOLIDST	10	571	689040	E	9K 9F 9G 9S	BaFeO		20
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q	BaO		50
Sumbaev O	6	SOV PHYS JETP	26	891	689189	E	9K 5N	BaO	50	100
Jones H	3	PHYS REV	45	379	349000	T	9K	Be		
Skinner H	1	PHILTRANSROYSOC	239A	95	409005	E	9K	Be		
Catterall J	2	PHIL MAG	3	1424	599007	E	9K 9S	Be		
Crisp R	2	PHIL MAG	6	365	619025	E	9K	Be		
Crisp R	1	THESIS U W AUST		1	619046	E	9K 0I	Be		100
Lukirskii A	1	BULLACADSCIUSSR	25	926	619055	E	9E 9K	Be		100
Sagawa T	1	SCI REP TOHOKUU	45	232	619095	E	9K 9S	Be		100

(1) 640 °C (2) 710 °C (3) 760 °C

a. K-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Tomboulia D	1	J QUAN SPECT RT	2	649	629122	R	9K	Be		
Lukirskii A	2	SOVPHYS SOLIDST	6	33	649089	E	9A 9K 6H	Be		100
Tomlin S	1	AUSTRAL J PHYS	17	452	649121	E	9K 9I 9B 9R	Be		
Henke B	2	J APPL PHYS	37	922	669013	E	9K 9C	Be		
Ehlert R	2	ADV XRAY ANALYS	9	456	669241	E	9K	Be		100
Henke B	1	ADV XRAY ANALYS	9	430	669244	E	9K 0I	Be		100
Hayasi T	2	SCI REP TOHOKUU	50	228	679151	E	9K 0I	Be		
Fischer D	2	NORELCO REPORTR	14	92	679387	R	9K 9R	Be		100
Hayasi Y	1	SCI REP TOHOKUU	51	1	689109	E	9K 9S	Be		
Rooke G	1	SXS BANDSPECTRA		3	689322	E	9K 9S 9T 5B 6T	Be		
Watson L	3	SXS BANDSPECTRA		45	689324	E	9K 9S	Be		
Wiech G	1	SXS BANDSPECTRA		59	689325	E	9K 5D 5B	Be		
Aita O	2	J PHYS SOC JAP	27	164	699204	E	9K 5B	Be		100
Nemnonov S	2	PHYS METALMETAL	28	68	699218	R	9K 5D 9A	Be		
Hayasi T	2	X RAY CONF KIEV	1	307	699286	R	9E 9K 6F	Be		
Watson L	4	X RAY CONF KIEV	2	56	699289	R	9K 0D	Be		
Sagawa T	1	J PHYSIQUE	32S	186	719204	E	9K 9S	Be		100
Feser K	4	J PHYSIQUE	32S	331	719209	E	9K 6S	Be		100
Feser K	4	MUNICH SYMP			739016	E	9K 6S	Be		100
Ehlert R	2	ADV XRAY ANALYS	9	456	669241	E	9K	Be Cu		00
O Bryan A	2	PROC ROY SOC	176A	229	409003	E	9K 5B 4L 0O	BeO		50
Lukirskii A	2	SOVPHYS SOLIDST	6	33	649089	E	9A 9K 6H	BeO		50
Henke B	2	J APPL PHYS	37	922	669013	E	9K 9C 4L	BeO		50
Ehlert R	2	ADV XRAY ANALYS	9	456	669241	E	9K	BeO		50
Henke B	1	ADV XRAY ANALYS	9	430	669244	E	9K 0I	BeO		50
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q	BeO		50
Fischer D	2	NORELCO REPORTR	14	92	679387	R	9K 9R	BeO		50
Holliday J	1	NORELCO REPORTR	14	84	679388	E	9K	BeO		50
Hayasi Y	1	SCI REP TOHOKUU	51	1	689109	E	9K 9S	BeO		50
Hayasi T	2	X RAY CONF KIEV	1	307	699286	R	9E 9K 3Q	BeO		50
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9K	BeO		50
Fomichev V	1	SOVPHYS SOLIDST	13	754	719170	R	9A 9K	BeO		50
Zhurakovs E	2	SOV PHYS DOKL	4	1308	599067	R	9K 9S	BeTi	50	67
Ehlert R	2	ADV XRAY ANALYS	9	456	669241	E	9K 0O	BeX		
Kolobova K	2	PHYS METALMETAL	27	69	699351	R	9A 9K	BiTi		50
Shaw C	2	PHYS REV	50	1006	369006	E	9S 9K 0O	Br		
Groven L	2	BULLACADROYBELG	37	630	519009	E	9K 9S 9I 5B 0O	Br		
Skinner H	1	PHILTRANSROYSOC	239A	95	409005	E	9K	C		
Das Gupta K	3	J SCI INDUS RES	14B	129	559005	E	9K 9L	C		
Dutta A	1	PROC PHYS SOC	74	604	599015	T	9K	C		
Crisp R	1	THESIS U W AUST		1	619046	E	9K 0I	C		100
Lukirskii A	1	BULLACADSIUSSR	25	926	619055	E	9E 9K	C		100
Holliday J	1	J APPL PHYS	33	3259	629095	E	9K	C		
Tomlin S	1	AUSTRAL J PHYS	17	452	649121	E	9K 9I 9B 9R	C		
Nicholson J	2	XRAY ANALYS	7	497	649163	E	9E 9K	C		100
Caruso A	2	APPL OPT	4	247	659052	E	9K 0I	C		
Fischer D	2	J CHEM PHYS	43	2075	659092	E	9K 4A	C		100
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	C		100
Holliday J	1	RONTGENCEMBIND		139	669203	E	9K 4L 4A	C		
Sagawa T	1	J PHYS SOC JAP	21	49	669229	E	9K 0D	C		
Ehlert R	2	ADV XRAY ANALYS	9	456	669241	E	9K	C		100
Henke B	1	ADV XRAY ANALYS	9	430	669244	E	9K 0I	C		100
Holliday J	1	ADV XRAY ANALYS	9	365	669246	E	9K	C		100
Holliday J	1	J APPL PHYS	38	4720	679258	E	9K	C		
Fischer D	2	NORELCO REPORTR	14	92	679387	R	9K 9R	C		100

a. K-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Holliday J	1	NORELCO REPORTR	14	84	679388	E	9K	C		100
Zhurakovs E	1	SOV PHYS DOKL	13	578	689166	E	9K	C		
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9K	C		
Zhurakovs E	1	SOV PHYS DOKL	14	168	699149	E	9K 5B	C		100
Nemnonov S	2	PHYS METALMETAL	28	68	699218	R	9K 5D	C		
Hoffmann L	3	Z PHYSIK	229	131	699264	E	9K 9I 9R 0S 7D	C		
Wiech C	2	NBS IMR SYMP	3		709118	E	9K	C		100
Borovskii I	3	SOV PHYS DOKL	15	1141	719051	E	9K 0X	C		
Aita O	3	J PHYS SOC JAP	30	516	719062	E	9K 9S 9C	C		100
Solomon J	2	APPL SPECTRY	25		719192	E	9K 0I	C		100
Feser K	4	J PHYSIQUE	32S	331	719209	E	9K 6S 0O	C		100
Feser K	4	MUNICH SYMP			739016	E	9K 6S	C		100
Fischer D	2	J CHEM PHYS	43	2075	659092	E	9K 4A	C Al		57
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	C Al		57
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	C Al		57
Gwinner E	2	Z PHYSIK	107	449	379001	E	9K 4A 4B 4N	C B		50
Fischer D	2	J APPL PHYS	37	768	669025	E	9K	C B		80
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	C B		80
Ehlert R	2	ADV XRAY ANALYS	9	456	669241	E	9K	C B		80
Hayasi T	2	SCI REP TOHOKU	50	228	679151	E	9K 0I	C B		80
Hayasi Y	1	SCI REP TOHOKU	51	43	689367	E	9K 3Q 9S 6P	C B		80
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9K	C Co Mn		
								C Co Mn		
								C Co Mn		
Menshikov A	1	PHYS METALMETAL	15	29	639089	T	9A 9K 5B	C Cr	20	43
Menshikov A	2	BULLACADSCIUSSR	27	402	639116	E	9K 9S 3Q	C Cr	20	40
Menshikov A	2	PHYS METALMETAL	19	52	659088	E	9A 9K 9C 2S 2B	C Cr	20	40
Holliday J	1	J APPL PHYS	38	4720	679258	E	9K	C Cr		50
Nemnonov S	4	PHYS METALMETAL	25	107	689194	E	9K 9S 5B	C Cr	20	40
Holliday J	1	SXS BANDSPECTRA	101		689329	E	9K	C Cr		60
Holliday J	1	NORELCO REPORTR	14	84	679388	E	9K	C Fe		25
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9K	C Fe	00	75
Holliday J	1	J APPL PHYS	38	4720	679258	E	9K	C Fe Mn		
								C Fe Mn		
								C Fe Mn		
Manne R	1	J CHEM PHYS	52	5733	709201	T	9K 9V 0O 9I 6T	C H	20	50
								C H	20	50
Holliday J	1	NORELCO REPORTR	14	84	679388	E	9K	C Hf		50
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9K	C Hf		50
Zhurakovs E	1	SOV PHYS DOKL	14	168	699149	E	9K 5B	C Hf		50
Holliday J	1	RONTGENCHEMBIND		139	669203	E	9K 4L 4A	C Mo		33
Holliday J	1	ADV XRAY ANALYS	9	365	669246	E	9K 4L	C Mo		33
Holliday J	1	J APPL PHYS	38	4720	679258	E	9K	C Mo		33
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9K	C Mo		67
Menshikov A	2	PHYS METALMETAL	19	52	659088	E	9A 9K 9C 2S 2B	C N	50	67
Vainshtein E	2	SOV PHYS DOKL	7	724	639028	E	9K 9S	C N Ti	11	21
								C N Ti	29	39
								C N Ti		50
Fischer D	2	J CHEM PHYS	43	2075	659092	E	9K 4A	C Nb		50
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	C Nb		50
Holliday J	1	RONTGENCHEMBIND		139	669203	E	9K 4L 4A	C Nb		50
Holliday J	1	ADV XRAY ANALYS	9	365	669246	E	9K 4L	C Nb		50
Holliday J	1	J APPL PHYS	38	4720	679258	E	9K	C Nb		50
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9K	C Nb		50
							9M 5D	C Nb		50

a. K-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Zhurakovs E	1	SOV PHYS DOKL	14	168	699149	E	9K 5B	C Nb		50
Ramqvist L	5	J PHYS CHEM SOL	32	149	719000	E	9L 4L 9V 5V 3Q	C Nb	43	48
							9K 4L 9V 5V 3Q	C Nb	43	48
Manne R	1	J CHEM PHYS	52	5733	709201	T	9K 9V 00 91 6T	C O	33	50
								C O	33	50
Kurmaev E	4	BULLACADSCIUSSR	31	1011	679179	E	9A 9K 5B 3Q	C O V	23	33
								C O V	24	26
								C O V	41	53
Zhurakovs E	3	SOV PHYS DOKL	11	814	679117	E	9C 9K 4L 5B 9F	C Sc		50
Kern B	1	Z PHYSIK	159	178	609025	E	9K	C Si		50
Demekhin V	2	BULLACADSCIUSSR	28	733	649139	E	9K 9S 91 4L	C Si		50
							9K	C Si		50
Fischer D	2	J CHEM PHYS	43	2075	659092	E	9K 4A	C Si		50
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	C Si		50
Demjoochin W	2	RONTGENCHEMBIND		58	669149	E	9K 9S 91 4L 4A	C Si		50
Demekhin V	2	BULLACADSCIUSSR	31	921	679162	E	9S 91 9K	C Si		25
Wiech G	1	SXS BANDSPECTRA		59	689325	E	9L 5D 5B	C Si	00	50
							9K 5D 5B	C Si	00	50
Chun H	1	PHYS LET	31A	118	709005	E	9K 9S 4L 0O	C Si	50	100
Nemoshkalenik V	2	SOVPHYS SOLIDST	12	46	709196	R	9L 9K 5D	C Si		
Nemnonov S	5	TRANSMETSOCAIME	245	1191	699104	R	9K 9A 9L 5D 3Q	C T		
Nemnonov S	2	PHYS METALMETAL	27	51	699115	R	9K 9S 3Q	C T		50
Holliday J	1	ADV XRAY ANALYS	13	136	709349	R	9K 4L	C T		
Fischer D	2	J CHEM PHYS	43	2075	659092	E	9K 4A	C Ta		50
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	C Ta		50
Holliday J	1	J APPL PHYS	38	4720	679258	E	9K	C Ta	00	50
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9K	C Ta	00	50
Zhurakovs E	1	SOV PHYS DOKL	14	168	699149	E	9K 5B	C Ta		50
Vainshtein E	2	SOV PHYS DOKL	2	207	579038	E	9K 9S	C Ti		50
Vainshtein E	2	SOV PHYS DOKL	2	251	579039	E	9K	C Ti	9	24
Vainshtein E	2	SOV PHYS DOKL	4	1050	599037	E	9K	C Ti		50
Zhurakovs E	2	SOV PHYS DOKL	4	1308	599067	R	9K 9S	C Ti		50
Vainshtein E	2	SOV PHYS KOKL	48	1050	609085	E	9C 9K 3Q	C Ti		50
Vainshtein E	2	SOV PHYS DOKL	7	724	629131	E	9K 4L	C Ti		
Vainshtein E	2	SOV PHYS DOKL	7	724	639028	E	9K 9S	C Ti		50
Nemnonov S	2	PHYS METALMETAL	22	36	669141	E	9A 9K 3Q 91 9S	C Ti		50
							5D	C Ti		
Holliday J	1	RONTGENCHEMBIND		139	669203	E	9L 91 4L	C Ti	45	50
							9K 4L 4A	C Ti		50
Holliday J	1	ADV XRAY ANALYS	9	365	669246	E	9L 4L	C Ti	45	49
							9K 4L	C Ti	45	49
Nemnonov S	1	PHYS METALMETAL	24	66	679213	R	9K 9L	C Ti		50
Chirkov V	3	SOVPHYS SOLIDST	9	873	679243	E	9A 9K 4L	C Ti		50 (1)
Holliday J	1	J APPL PHYS	38	4720	679258	E	9K	C Ti	0	50
Holliday J	1	NORELCO REPORTR	14	84	679388	E	9K	C Ti		50
Zhurakovs E	1	SOV PHYS DOKL	13	578	689166	E	9K	C Ti	35	56
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9L 5D	C Ti		50
							9K	C Ti		50
Ramqvist L	5	J PHYS CHEM SOL	30	1849	699087	E	9A 9K 3Q 3Q	C Ti		
Zhurakovs E	1	SOV PHYS DOKL	14	168	699149	E	9K 5B	C Ti		50
Fischer D	1	J APPL PHYS	41	3922	709186	R	9K 5B	C Ti		50
							9L 9A 5B	C Ti		50
Holliday J	1	ADV XRAY ANALYS	13	136	709349	R	9K 4L	C Ti	0	66
Ramqvist L	5	J PHYS CHEM SOL	32	149	719000	R	9K 9L 3Q 5B	C Ti		50

(1) Did not exceed 100 °C

a. K-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Vainshtein E	2	SOV PHYS DOKL	2	207	579038	E	9K 9S	C Ti W C Ti W C Ti W		51 24 25
Dzeganovskii V	2	SOV PHYS DOKL	11	349	669144	E	9K 9G 3Q 4L	C V	16	19
Kurmaev E	4	BULLACADSCIUSSR	31	1011	679179	E	9A 9K 5B 3Q	C V	41	47
Holliday J	1	J APPL PHYS	38	4720	679258	E	9K	C V	00	50
Nemnonov S	4	PHYS METALMETAL	25	107	689194	E	9K 9S 5B	C V	40	46
Holliday J	1	SXS BANDSPECTRA		101	689324	E	9K	C V	00	50
Zhurakovs E	1	SOV PHYS DOKL	14	168	699149	E	9K 5B	C V		50
Zhurakovs E	3	INORGANIC MATLS	6	183	709306	E	9L 4A 1H 1B 1T	C V	27	48
							9K 4L	C V	27	48
							9K 4L	C V	29	47
Holliday J	1	ADV XRAY ANALYS	13	136	709349	R	9K 4L	C V	0	50
Ramqvist L	5	J PHYS CHEM SOL	32	149	719000	E	9K 4L 9V 5V 3Q	C V	42	47
							9L 4L 9V 5V 3Q	C V	42	47
								C V	42	47
Zhurakovs E	8	SOV PHYS DOKL	15	877	719021	E	9L 4A 1H 4L	C V	28	47
							9K 4L	C V	28	47
							9K 9A	C V	28	47
Holliday J	1	RONTGENCHEMBINT		139	669203	E	9K 4L 4A	C Zr		50
Holliday J	1	ADV XRAY ANALYS	9	365	669246	E	9K 4L	C Zr		50
							9M	C Zr		50
Holliday J	1	NORELCO REPORTR	14	84	679386	E	9K	C Zr		50
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9K	C Zr		50
Zhurakovs E	1	SOV PHYS DOKL	14	168	699149	E	9K 5B	C Zr		50
Pearsall A	1	PHYS REV	48	133	359001	E	9S 9K	Ca		
Parratt L	1	PHYS REV	49	502	369002	E	9S 9K	Ca		
Parratt L	1	PHYS REV	50	1	369003	E	9S 9K	Ca		
Shuvaev A	1	BULLACADSCIUSSR	24	434	609087	T	4L 9E 9K 5N	Ca		100
Best P	1	BULL AM PHYSSOC	9	388	649103	R	9K 9S 4B	Ca		
Finkelshtein L	2	PHYS METALMETAL	22	38	669161	E	9A 9K	Ca		
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	CaAl		50
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	CaAl		67
Gwinner E	2	Z PHYSIK	107	449	379001	E	9K 4A 4B 4N	CaB		86
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q 0O	CaF		33
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 4L 5B 9I 0O	CaO		50
Finkelshtein L	2	PHYS METALMETAL	22	38	669161	E	9A 9K	CaO		
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q	CaO		50
Faessler A	2	Z PHYSIK	138	71	549008	E	9G 9K 4L 5B 0O	CaO S CaO S CaO S CaS		17 67 16 50
							9G 9K 5B 0O	CaSi		33
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	CaSi		
Gokhale B	1	COMPT REND	233	937	519008	E	9K 4A	Cd		
Gokhale B	1	ANN PHYSIQUE	7	852	529013	E	9K 4A 6L 5B	Cd		
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 0O	CdO		50
Shivinsky V	2	PHYS LET	29A	463	699110	E	9I 9K 9C	Ce		
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	CeAl		67
Gwinner E	2	Z PHYSIK	107	449	379001	E	9K 4A 4B 4N	CeB		86
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	CeSi		33
Parratt L	1	PHYS REV	49	502	369002	E	9S 9K 0O	Cl		
Parratt L	1	PHYS REV	50	1	369003	E	9S 9K 0O	Cl		
Gokhale B	1	ANN PHYSIQUE	7	852	529013	E	9K 4A 6L 5B 0O	ClRb		50
Pearsall A	1	PHYS REV	48	133	359001	E	9S 9K	Co		
Parratt L	1	PHYS REV	50	1	369003	E	9S 9K	Co		

a. K-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Edamoto I	1	SCI REP TOHOKU	2A	561	509005	E	9K 9F	Co		
Sawada M	4	J PHYS SOC JAP	10	647	559022	E	9K 9S	Co		
Borisov N	2	BULLACADSCIUSSR	25	1011	619099	E	9K 91 9S 3Q	Co	100	
Nemoshkalen V	1	SOV PHYS DOKL	7	348	629106	E	9K 91 6P 5N	Co	100	(1)
Nemoshkalen V	1	SOV PHYS DOKL	8	78	639120	E	9K 9S 91 4B	Co		
Best P	1	BULL AM PHYSSOC	9	388	649103	R	9K 9S 4B	Co		
Nemoshkalen V	2	BULLACADSCIUSSR	31	1005	679178	E	9K 5D 5B	Co	100	
Nemoshkalen V	2	SOV PHYS DOKL	12	735	689006	E	9F 9K 9L	Co		
Nemoshkalen V	2	UKRAIN PHYS J	13	847	699108	E	9K 9G	Co	100	
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	CoAl	50	
Fischer D	2	ADV XRAY ANALYS	10	374	679041	E	9K 9S 91 6P 4L	CoAl	50	
Nemoshkalen V	3	AKADNAUKUR RPT		151	709357	E	9K	CoAl		
Nemoshkalen V	1	SOV PHYS DOKL	7	348	629106	E	9K 91 9S	CoFe	0	100 (1)
Kolobova K	2	PHYS METALMETAL	25	77	689369	E	9K 9G 9S	CoFe	05	95 (1)
Austin A	2	J SOLID ST CHEM	1	229	709003	E	9K	CoGe	33	83
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9K	Co MnC		
								Co MnC		
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 00	Co O	40	43
Menshikov A	3	PHYS STAT SOLID	35	89	699182	E	9K 5X 5B	Co O		50
							9L	Co O		50
Sugiura C	1	JAP J APPL PHYS	10	1120	719186	E	9A 9K 6P	Co S		50
Kallne E	2	MUNICH SYMP			739011	E	9K	Co Ti		
Nemoshkalen V	2	UKRAIN PHYS J	13	847	699108	E	9K 9G 3Q	Co V	43	
Nemnonov S	4	PHYS STAT SOLID	46	77	719169	E	9K	Co V	25	
Nemnonov S	6	BAND STRU SPECT		237	739006	E	9K	Co V	25	
Pearsall A	1	PHYS REV	48	133	359001	E	9S 9K	Cr		
Parratt L	1	PHYS REV	50	1	369003	E	9S 9K	Cr		
Herglotz H	1	OSTER AKAD WISS	162	235	539008	E	9K 9S	Cr		
Sawada M	4	J PHYS SOC JAP	10	647	559022	E	9K 9S	Cr		
Borisov N	3	BULLACADSCIUSSR	21	1412	579012	E	9K 6P	Cr	100	
Borisov M	3	ISLAKADNAUKSSR	3	252	589002	E	9K	Cr		
Borisov N	3	SOV PHYS DOKL	3	826	589066	E	9K 4A	Cr		
Borisov N	2	PHYS METALMETAL	8	44	599004	E	9K 9S 4A	Cr	100	
Borovskii I	2	PHYSMETALMETAL	7	61	599006	E	9K 9A 6P	Cr	99	100
Borisov M	3	BULLACADSCIUSSR	24	443	609010	E	9K 9S	Cr		
							9K 4A 6P	Cr		100
Borisov N	2	BULLACADSCIUSSR	25	1011	619099	E	9K 91 9S 3Q	Cr		100
Menshikov A	1	PHYS METALMETAL	14	118	629126	E	9K 0D	Cr		100
Menshikov A	1	PHYS METALMETAL	15	29	639089	T	9A 9K 5B	Cr		100
Menshikov A	2	BULLACADSCIUSSR	27	402	639116	E	9K 9S 3Q	Cr		
Shuvaev A	2	BULLACADSCIUSSR	27	331	639117	E	9K 9S 4L 4A	Cr		
Nemoshkalen V	1	SOV PHYS DOKL	8	78	639120	E	9K 9S 91 4B	Cr		
Tomlin S	1	AUSTRAL J PHYS	17	452	649121	E	9K 91 9B 9R	Cr		
Menshikov A	2	PHYS METALMETAL	19	52	659088	E	9A 9K 9C 2S 2B	Cr	100	
Nemnonov S	2	PHYS METALMETAL	22	66	669086	E	9K 9A 6P 6F 0D	Cr		
							5D	Cr		
Nemoshkalen V	2	BULLACADSCIUSSR	31	1005	679178	E	9K 5D 5B	Cr	100	
Nemoshkalen V	2	SOV PHYS DOKL	12	735	689006	E	9F 9K 9L	Cr		
Nemnonov S	2	PHYS METALMETAL	26	43	689236	R	9K 9L	Cr	100	
Finkelshstein L	2	PHYS METALMETAL	26	102	689370	E	9K 9A	Cr	100	
Nemoshkalen V	4	UKRAIN PHYS J	13	837	699109	R	9K 9L	Cr	100	
Blau W	1	X RAY CONF KIEV	2	188	699298	E	9S 91 9K 9Q	Cr		
Leonhardt G	2	X RAY CONF KIEV	2	342	699304	E	9K 4B 3Q	Cr		

(1) 250 °C to 1250 °C

a. K-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Fischer D	1	PHYS REV	4B	1778	719106	R	9K 9M 6G 5B 9A	Cr		100
Nemnonov S	2	BULLACADSCIUSSR	25	1015	619059	E	9A 9K	CrAl		33
Menshikov A	2	BULLACADSCIUSSR	27	402	639116	E	9K 9S 3Q	CrAl	33	80
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	CrAl		50
Fischer D	2	ADV XRAY ANALYS	10	374	679041	E	9K 9S 9I 6P 4L	CrAl		50
Kolobova K	2	PHYS METALMETAL	27	69	699351	R	9K 9K	CrAl	33	80
Menshikov A	2	BULLACADSCIUSSR	27	402	639116	E	9K 9S 3Q	CrB	50	67
Menshikov A	2	PHYS METALMETAL	19	52	659088	E	9A 9K 9G 2S 2B	CrB	50	67
Nemnonov S	4	PHYS METALMETAL	25	107	689194	E	9K 9S 5B	CrB	50	67
Cuthill J	4	NBS TECH NOTE	565	11	710591	E	9K 5D	CrB		67
Frantsevi A	3	SOV PHYS DOKL	15	970	719050	E	9K 3Q	CrB		67
Mc Alister A	4	MUNICH SYMP			739018	E	9K 5B	CrB		67 (1)
Menshikov A	1	PHYS METALMETAL	15	29	639089	T	9A 9K 5B	CrC	20	43
Menshikov A	2	BULLACADSCIUSSR	27	402	639116	E	9K 9S 3Q	CrC	20	40
Menshikov A	2	PHYS METALMETAL	19	52	659088	E	9A 9K 9G 2S 2B	CrC	20	40
Holliday J	1	J APPL PHYS	38	4720	679258	E	9K	CrC		50
Nemnonov S	4	PHYS METALMETAL	25	107	689194	E	9K 9S 5B	CrC	20	40
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9K	CrC		60
Kazantsev V	1	SBOR NAU TRUDOV	2	187	569020	E	9K	CrFe	85	89
Borisov N	3	BULLACADSCIUSSR	21	1412	579012	E	9K 6P	CrFe	04	75
Borisov M	3	ISLAKADNAUKSSR	3	252	589002	E	9K	CrFe	4	50
Borisov N	3	SOV PHYS DOKL	3	826	589066	E	9K 4A 6F	CrFe	35	55
Borisov N	2	PHYS METALMETAL	8	44	599004	E	9K 9S 4S	CrFe		45
Kolobova K	2	PHYS METALMETAL	25	77	689369	E	9K 9G 9A	CrFe		50
Borisov N	2	PHYS METALMETAL	8	44	599004	E	9K 9S 4A	CrFeNi		26
								CrFeNi		58
								CrFeNi		16
Borisov N	3	BULLACADSCIUSSR	24	451	609010	E	9K 4A 6P	CrFeNi	50	60 (2)
								CrFeNi		40 (2)
Fischer D	1	J PHYS CHEM SOL	32	2455	719147	E	9K 4A 6P	CrFeNi	0	10 (2)
							9K 9A	CrK O		14
							9L 9A	CrK O		29
								CrK O		57
Finkelstein L	2	PHYS METALMETAL	26	102	689370	E	9K 9A	CrMn	07	55
Borovskii I	5	BULLACADSCIUSSR	21	1389	579060	E	9K 9S	CrMo	5	18
							9A 9K 6P	CrMo	00	100
Borovskii I	2	PHYSMETALMETAL	7	61	599006	E	9K 9A 6P	CrMo	99	100
							9A 9L	CrMo	99	100
Menshikov A	2	BULLACADSCIUSSR	27	402	639116	E	9K 9S 3Q	CrN	50	67
Nemnonov S	4	PHYS METALMETAL	25	107	689194	E	9K 9S 5B	CrN	50	67
Zhurakovs E	2	SOV PHYS DOKL	14	710	709183	E	9K 4L 3Q	CrN	50	67
Fischer D	1	J PHYS CHEM SOL	32	2455	719147	E	9K 9A	CrNaO		14
							9L 9A	CrNaO		29
								CrNaO		57
Menshikov A	1	PHYS METALMETAL	14	118	629126	E	9K 0D	CrO		40
Menshikov A	2	BULLACADSCIUSSR	27	402	639116	E	9K 9S 3Q	CrO		40
Shuvaev A	2	BULLACADSCIUSSR	27	331	639117	E	9K 9S 4L 4A	CrO		40
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 4L 5B 9I 0O	CrO		40
Menshikov A	2	PHYS METALMETAL	19	52	659088	E	9A 9K 9G 2S 2B	CrO		40
Nemnonov S	4	PHYS METALMETAL	25	107	689194	E	9K 9S 5B	CrO		40
Nemoshkalenok V	4	UKRAIN PHYS J	13	837	699109	E	9L	CrO		40
							9A 9K	CrO		40
Fischer D	1	J PHYS CHEM SOL	32	2455	719147	E		CrO	25	40
							9K 9A	CrO	25	40
Menshikov A	2	BULLACADSCIUSSR	27	402	639116	E	9K 9S 3Q	CrSi	33	75
Nemnonov S	2	PHYS STAT SOLID	24K	43	679383	E	9K 9A	CrSi		75

(1) 870 °C (2) 1000 °C

a. K-Spectra—Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Kolobova K	2	PHYS METALMETAL	26	57	689368	R	9K 9S	CrSi	33	50
Nemnonov S	3	PHYS STAT SOLID	39	39	709195	R	9A 9K 5B	CrSi		75
Nemnonov S	2	PHYS METALMETAL	22	66	669086	E	9A 9K 6P 6F	CrV	40	93
Menshikov A	2	BULLACADSCIUSSR	27	402	639116	E	9K 9S 3Q 0O	CrX		
Shuvaev A	2	BULLACADSCIUSSR	27	331	639117	E	9E 9K 9S 4L 4A	CrX		
Menshikov A	2	PHYS METALMETAL	19	52	659088	E	9A 9K 9C 0O	CrX		
Pearsall A	1	PHYS REV	48	133	359001	E	9S 9K	Cu		
Parratt L	1	PHYS REV	50	1	369003	E	9S 9K	Cu		
Bearden J	2	PHYS REV	58	387	409001	E	9A 9K 5B 5D 4L	Cu		
Friedman H	2	PHYS REV	58	400	409002	E	9K 9A	Cu		
Edamoto I	1	SCI REP TOHOKUU	2A	561	509005	E	9K 9F	Cu		
Sawada M	4	J PHYS SOC JAP	10	647	559022	E	9K 9S	Cu		
Hanson H	2	PHYS REV	105	1483	579048	E	9E 9K	Cu		
Nemoshkalenk V	1	SOV PHYS DOKL	8	78	639120	E	9K 9S 9I 4B	Cu		
Best P	1	BULL AM PHYSSOC	9	388	649103	R	9K 9S 4B	Cu		
Nikiforov I	2	BULLACADSCIUSSR	28	695	649118	E	9K 9S	Cu		
Tomlin S	1	AUSTRAL J PHYS	17	452	649121	E	9K 9I 9B 9R	Cu		
Metchnik V	1	AUST J PHYS	17	45	649127	E	9K 9I 5Q	Cu		
Nikiforov I	1	RONTGENCHEMBIND		241	669214	T	9K	Cu		100
Fischer B	2	Z PHYSIK	204	122	679137	E	9K 9H 9I 4X	Cu		
Akopdzhinov R	1	PHYS METALMETAL	24	46	679212	E	9A 9K 5B	Cu		100
Nemoshkalenk V	3	PHYS STAT SOLID	30	703	689298	E	9K 6T	Cu		100
Slivinsky V	2	PHYS LET	29A	463	699110	E	9I 9K 9C	Cu		
Yoshida S	1	INSTPHYSCHEMRES	28	243	369007	E	9K	CuAl	10	100
Farineau J	1	J PHYS RADIUM	10	327	399007	E	9K	CuAl	19	100
Cauchois Y	1	COMPT REND	231	574	509000	E	9K 6P	CuAl		10
Friedel J	1	PHIL MAG	43	153	520032	R	9A 9K 5N 6P	CuAl		
Kurylenko C	1	CAHIERS PHYS	20	333	669130	E	9K	CuAl	10	100
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	CuAl	10	100
Fischer D	2	ADV XRAY ANALYS	10	374	679041	E	9K 9S 9I 6P 4L	CuAl	10	100
Baun W	2	J APPL PHYS	38	2092	679108	E	9S 9I 9K 5B 4L	CuAl	10	100
Fischer D	2	NORELCO REPORTR	14	92	679387	R	9K	CuAl	20	100
Nemnonov S	2	PHYS METALMETAL	28	192	699145	E	9K	CuAl	33	67
Baun W	1	J APPL PHYS	40	4210	699174	E	9K 9F 4L	CuAl		49
Solomon J	2	APPL SPECTRY	25		719192	E	9K	CuAl		40
Ehlert R	2	ADV XRAY ANALYS	9	456	669241	E	9K	CuBe		00
Crisp R	1	THESIS U W AUST		1	619046	E	9K 0I	CuLi		
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	CuMg		67
Cauchois Y	1	COMPT REND	231	574	509000	E	9K 6P	CuMgAl	94	95
								CuMgAl		04
								CuMgAl	01	02
								CuMgAl		17
								CuMgAl		67
								CuMgAl		16
								CuMn	66	90
								CuMnAl	08	25
								CuMnAl	50	79
								CuMnAl	23	25
								CuMnAl		25
								CuMnAl		25
								CuMnAl		25
Friedman H	2	PHYS REV	58	400	409002	E	9K 9A	CuNi	20	70
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 0O	CuO	50	67
Menshikov A	3	PHYS STAT SOLID	35	89	699182	E	9K 5X 5B	CuO		50
							9L	CuO		50

a. K-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Akopdzhano R	1	SOVPHYS SOLIDST	12	1095	709228	E	9A 9K 9S 5B	Cu O		67
							9L 5B	Cu O		67
							9K	CuO		67
Hedman J	9	PHYS SCRIPTA	4	195	719188	E	9L	CuPd		60
							9K	Cu Pd		60
Sugiura C	1	JAP J APPL PHYS	10	1120	719186	E	9A 9K 6P	CuS		50
Bearden J	2	PHYS REV	58	387	409001	E	9A 9K 5B 5D 4L	CuZn	21	95
Sato M	1	SCI REP TOHOKUU	30	267	419000	T	9A 9K 9S	CuZn		
Friedel J	1	PHIL MAG	43	153	520032	R	9A 9K 5N 6P	CuZn		
Wiech G	2	BAND STRU SPECT	2	173	739007	E	9K 9L	DyAl		67
Slivinsky V	2	PHYS LET	29A	463	699110	E	9I 9K 9G	Er		
Wiech G	2	BAND STRU SPECT	2	173	739007	E	9K 9L	ErAl		67
Slivinsky V	2	PHYS LET	29A	463	699110	E	9I 9K 9G	Eu		
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q 00	F Ca		33
							9K 3Q 00	F Li		50
							9K 3Q 00	F Na		50
Utriainen J	5	Z NATURFORSCH	23A	1178	689210	E	9I 9K 9S 9C 00	F Na		50
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q	F Tb		75
Pearsall A	1	PHYS REV	48	133	359001	E	9S 9K	Fe		
Parratt L	1	PHYS REV	50	1	369003	E	9S 9K	Fe		
Edamoto I	1	SCI REP TOHOKUU	2A	561	509005	E	9K 9F	Fe		
Sawada M	4	J PHYS SOC JAP	10	647	559022	E	9K 9S	Fe		
Borisov N	3	BULLACADSCIUSSR	21	1412	579012	E	9K 6P	Fe		100
Hanson H	2	PHYS REV	105	1483	579048	E	9E 9K	Fe		
Borisov M	3	ISSAKADNAUKSSR	3	252	589002	E	9K	Fe		
Borisov N	3	SOV PHYS DOKL	3	826	589066	E	9K 4A	Fe		
Borisov N	2	PHYS METALMETAL	8	44	599004	E	9K 9S 4A	Fe	100	(1)
Borisov M	3	BULLACADSCIUSSR	24	443	609010	E	9K 9S	Fe		
							9K 4A 6P	Fe		100
Gorak Z	1	BULLACADSCIUSSR	24		609020	T	9K 9S	Fe		
Shuvaev A	1	BULLACADSCIUSSR	24	434	609087	T	4L 9E 9K 5N	Fe		100
Nikiforov I	1	BULLACADSCIUSSR	25	1048	619061	T	9K 9S	Fe		
Borisov N	2	BULLACADSCIUSSR	25	1011	619099	E	9K 9I 9S 3Q	Fe		100
Nemoshkalenk V	1	SOV PHYS DOKL	7	348	629106	E	9K 9I 6P 5N	Fe		100 (2)
Nikiforov I	2	BULLACADSCIUSSR	27	323	639109	T	9E 9K 5W 5D	Fe		
Nemoshkalenk V	1	SOV PHYS DOKL	8	78	639120	E	9K 9S 9I 4B	Fe		
Best P	1	BULL AM PHYSSOC	9	388	649103	R	9K 9S 4B	Fe		
Nikiforov I	2	BULLACADSCIUSSR	28	695	649118	E	9K 9S	Fe		
Nagornyi V	2	SOV PHYS DOKL	11	161	669001	E	9K 9I 9S	Fe		100
Kolobova K	3	PHYS METALMETAL	21	132	669018	E	9K 9G	Fe		
Nemoshkalenk V	2	RONTGENCHEMBIND		230	669213	E	9K 9I	Fe		100
Nemnonov S	2	PHYS METALMETAL	23	66	679055	E	9A 9K 5D	Fe		100
Nemoshkalenk V	2	BULLACADSCIUSSR	31	1005	679178	E	9K 5D 5B	Fe		100
Nemoshkalenk V	2	SOV PHYS DOKL	12	735	689006	E	9F 9K 9L	Fe		
Kirichok P	2	UKRAIN PHYS J	13	66	689063	E	9K 9S 4L	Fe		
Kolobova K	2	PHYS METALMETAL	26	57	689368	E	9K 9S 9I 9S 9C	Fe		100
Kolobova K	2	PHYS METALMETAL	25	77	689369	E	9K 9G 9S	Fe		100
Nemoshkalenk V	2	UKRAIN PHYS J	13	1022	699240	E	9K 4L 9U 4A	Fe		100
Blau W	1	X RAY CONF KIEV	2	188	699298	E	9S 9I 9K 9Q	Fe		
Nemnonov S	2	BULLACADSCIUSSR	25	1015	619059	E	9A 9K	FeAl		25
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	FeAl	10	100
Fischer D	2	ADV XRAY ANALYS	10	374	679041	E	9K 9S 9I 6P 4L	FeAl	25	75
Fischer D	2	J APPL PHYS	38	229	679096	E	9K 9S	FeAl	00	100
Nemoshkalenk V	3	PHYS STAT SOLID	29	45	680711	E	9K	FeAl		67
Nemoshkalenk V	2	UKRAIN PHYS J	13	1022	699240	E	9K 4L 9U 4A 3Q	FeAl	25	72

(1) 1000 °C (2) 300 °C to 1200 °C

a. K-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Kolobova K	2	PHYS METALMETAL	27	69	699351	R	9K	Fe Al	25	75
Nemoshkalenik V	2	AKADNAUKUKR RPT		130	709356	E	9K	Fe Al		50
Holliday J	1	NORELCO REPORTR	14	84	679388	E	9K	Fe C		25
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9K	Fe C	00	75
Nemoshkalenik V	1	SOV PHYS DOKL	7	348	629106	E	9K 91 9S	FeCo	0	100
Kolobova K	2	PHYS METALMETAL	25	77	689369	E	9K 91 6P 5N	FeCo	05	95
Kazantsev V	1	SBOR NAU TRUDOV	2	187	569020	E	9K 9G 9S	Fe Co		50
Borisov N	3	BULLACADSCIUSSR	21	1412	579012	E	9K 6P	FeCr	85	89
Borisov M	3	ISSLAKADNAUKSSR	3	252	589002	E	9K	FeCr	04	75
Borisov N	3	SOV PHYS DOKL	3	826	589066	E	9K 4A 6F	FeCr	4	50
Borisov N	2	PHYS METALMETAL	8	44	599004	E	9K 9S 4A	FeCr	35	55
Kolobova K	2	PHYS METALMETAL	25	77	689369	E	9K 9G 9S	Fe Cr		45
Austin A	2	J SOLID ST CHEM	1	229	709003	E	9K	Fe Ge	33	50
Holliday J	1	J APPL PHYS	38	4720	679258	E	9K	FeMn C		83
Sasovskiy I	3	PHYS METALMETAL	27	78	699352	E	9K 9G	FeMn C		
Borisov N	2	PHYS METALMETAL	8	44	599004	E	9K 9S 4A	FeNi		70
Borisov N	3	BULLACADSCIUSSR	24	451	609010	E	9K 4A 6P	FeNiCr		26
Holliday J	1	J APPL PHYS	33	3259	629095	E	9K 4A 6P	FeNiCr		58
Nicholson J	2	XRAY ANALYS	7	497	649163	E	9E 9K	FeNiCr	50	60 (1)
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 4L 5B 91 00	FeNiCr	40	40
Kolobova K	3	PHYS METALMETAL	21	132	669018	E	9K 9G	Fe NiCr	0	10
Kolobova K	3	SOVPHYS SOLIDST	10	571	689040	E	9K 9F 9G 9S	Fe O	43	43
Kirichok P	2	UKRAIN PHYS J	13	66	689063	E	9K 9S 4L	Fe O	40	43
Menshikov A	3	PHYS STAT SOLID	35	89	699182	E	9K 5X 5B	Fe O	40	50
Krause H	3	TECH REPORT AD	699	544	709013	E	9L	Fe O	50	50
Krause H	3	JELECTROCHEMSOC	117	557	709042	E	9K 4L	Fe O	40	40
Kolobova K	3	SOVPHYS SOLIDST	10	571	689040	E	9K 4L	Fe O	43	50
Sugiura C	1	JAP J APPL PHYS	10	1120	719186	E	9K 9E	Fe O	40	50
Das Gupta K	1	TECH REPORT AD	412	791	639088	E	9K 9F 9G 9S	Fe O Ba	20	20
Kolobova K	2	PHYS METALMETAL	26	57	689368	E	9A 9K 6P	Fe S		50
Nemnonov S	2	PHYS METALMETAL	23	66	679055	E	9K 5B	Fe Si	0	75
Kolobova K	2	PHYS METALMETAL	25	77	689369	E	9K 9S 91 9S 9G	Fe Si	28	83
Kallne E	2	MUNICH SYMP			739011	E	9K 9S 91 9S 9G	Fe Si	30	50
Nagorniy V	2	SOV PHYS DOKL	11	161	669001	E	9A 9K 5D	Fe Ti	0	67
Nemoshkalenik V	2	RONTGENCHEMBIND		230	669213	E	9K 9G 9S	Fe Ti	20	50
Kolobova K	2	PHYS METALMETAL	25	77	689369	E	9K 91 9S	Fe V	22	57
Nemnonov S	6	BAND STRU SPECT		237	739006	E	9K 91 4L	Fe V	52	99
Kirichok P	2	UKRAIN PHYS J	13	66	689063	E	9K 91 4L	Fe V		50
Parratt L	1	PHYS REV	50	1	369003	E	9K 9G 9S	Fe V		30
Shaw C	2	PHYS REV	50	1006	369006	E	9K	Fe X		
Drahokoup J	3	CZECH J PHYS	18B	1034	689222	E	9K 9S 00 4L	Ga		
Chun H	2	Z NATURFORSCH	24A	930	699133	E	9S 9K	Ga		
							9K 9L 0X	Ga Ge		00
							9K 9F 6U 6P	Ga O		40

(1) 1000 °C

a. K-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Wiech G	1	Z PHYSIK	216	472	689248	E	9L 9K 5B	GaP		50
Domaschew E	2	RONTGENCHEMBIND		70	669177	E	9K 9S 9I 4L	GaSb		50
Nemnonov S	3	PHYS STAT SOLID	39	39	709195	E	9K 5B 7T	GaV		25
Slivinsky V	2	PHYS LET	29A	463	699110	E	9I 9K 9C	Gd		
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	GdAl		67
Parratt L	1	PHYS REV	50	1	369003	E	9S 9K	Ge		
Shaw C	2	PHYS REV	50	1006	369006	E	9S 9K	Ge		
Edamoto I	1	SCI REP TOHOKUU	2A	561	509005	E	9K 9F	Ge		
Lyapin V	1	SOVPHYS SOLIDST	8	2851	679109	E	9L 9K 5B	Ge		
Deslattes R	1	PHYS REV	172	625	689213	E	9L 9K 0X	Ge		
Drahokoup J	3	CZECH J PHYS	18B	1034	689222	E	9K 9L 0X	Ge		100
Nemoshkalen V	3	PHYS STAT SOLID	30	703	689298	E	9K 6T	Ge		100
Klima J	1	J PHYS	3C		709004	T	9K 9L 9M 6T	Ge		100
Fomichev V	2	SOVPHYS SOLIDST	12	2121	719044	R	9K 9M 5D	Ge		100
Austin A	2	J SOLID ST CHEM	1	229	709003	E	9K	GeCo	33	83
							9K	GeFe	33	83
Drahokoup J	3	CZECH J PHYS	18B	1034	689222	E	9K 9L 0X	GeCa		00
Austin A	2	J SOLID ST CHEM	1	229	709003	E	9K	GeMn	17	67
							9K	GeNi	17	67
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 00	GeO		33
Drahokoup J	3	CZECH J PHYS	18B	1034	689222	E	9K 9L 0X	GeSb		00
Nemnonov S	3	PHYS STAT SOLID	39	39	709195	E	9K 5B 7T	GeV		25
Manne R	1	J CHEM PHYS	52	5733	709201	T	9K 9V 00 9I 6T	H C	20	50
								H C	20	50
Vainshtein E	2	SOV PHYS DOKL	2	207	579038	E	9K 9S	H Ti		50
Vainshtein E	2	SOV PHYS DOKL	4	1050	599037	E	9K	H Ti	01	003
Zhurakovs E	2	SOV PHYS DOKL	4	1308	599067	R	9K 9S	H Ti		
Vainshtein E	2	SOV PHYS DOKL	4	1050	609085	E	9C 9K 3Q 9S	H Ti	33	58
Nemnonov S	2	PHYS METALMETAL	22	36	669141	E	9A 9K 3Q 9I 9S	H Ti		64
Slivinsky V	2	PHYS LET	29A	463	699110	E	9I 9K 9C	Hf		
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	HfAl		50
Frantsevi A	3	SOV PHYS DOKL	15	970	719050	E	9K 3Q	HfB		67
Holliday J	1	NORELCO REPORTR	14	84	679388	E	9K	HfC		50
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9K	HfC		50
Zhurakovs E	1	SOV PHYS DOKL	14	168	699149	E	9K 5B	HfC		50
Zhurakovs E	2	SOV PHYS DOKL	14	710	709183	E	9K 4L 3Q	HfN		50
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 4L 5B 9I 00	HfO		33
Sumbaeov O	6	SOV PHYS JETP	26	891	689189	E	9K 5N	HfO	33	100
Morlet J	1	BULLACADROYBELG	35	1059	499003	E	9K 9L 9S	Hg		
Barrere G	1	COMPT REND	233	376	519001	E	9K 9I	Hg		
Beckman O	1	PHYS REV	109	1590	589001	E	9K	Hg		
Gokhale B	1	COMPT REND	233	937	519008	E	9K 4A	In		
Gokhale B	1	ANN PHYSIQUE	7	852	529013	E	9K 4A 6L 5B	In		
Chun H	2	Z NATURFORSCH	24A	930	699133	E	9K 9F 6U 6P	InO		40
Wiech G	1	Z PHYSIK	216	472	689248	E	9L 9K 5B	InP		50
Domaschew E	2	RONTGENCHEMBIND		70	669177	E	9K 9S 9I 4L	InSb		50
Nemnonov S	4	PHYS STAT SOLID	46	77	719169	E	9K	IrV		25
Nemnonov S	6	BAND STRU SPECT		237	739006	E	9K	IrV		25
Parratt L	1	PHYS REV	49	502	369002	E	9S 9K	K		
Parratt L	1	PHYS REV	50	1	369003	E	9S 9K	K		
Richtmyer R	1	PHYS REV	49	1	369005	T	9S 9K	K		
Best P	1	BULL AM PHYSSOC	9	388	649103	R	9K 9S 4B	K		
Fischer D	1	J PHYS CHEM SOL	32	2455	719147	E	9K 9A	K O Cr		14
							9L 9A	K O Cr		29
								K O Cr		57

a. K-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Faessler A	2	Z PHYSIK	138	71	549008	E	9G 9K 4L 5B 0O	K O S K O S K O S		29 57 14
Shaw C	2	PHYS REV	50	1006	369006	E	9S 9K 0O	Kr		
Groven L	2	BULLACADROYBELG	37	630	519009	E	9K 9S 9I 5B 0O	Kr		
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	LaAl		67
Gwinner E	2	Z PHYSIK	107	449	379001	E	9K 4A 4B 4N	LaB		86
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q	LaO		60
Sumbaev O	6	SOV PHYS JETP	26	891	689189	E	9K 5N	LaO	40	100
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	LaSi		33
Jones H	3	PHYS REV	45	379	349000	T	9K	Li		
Skinner H	1	PHILTRANSROYSOC	239A	95	409005	E	9K	Li		
Sen A	1	INDIAN J PHYS	30	415	569025	E	9K 5B	Li		
Bedo D	1	DISSERT ABSTR	17	1097	579006	E	9K 9S	Li		
Tomboulia D	2	PHYS REV	109	35	589030	E	9K	Li		
Catterall J	2	PHIL MAG		1424	599007	E	9K 9S	Li		
Catterall J	2	PHIL MAG		1164	599008	E	9K	Li		
Crisp R	2	PHIL MAG		525	609015	E	9K	Li		
Crisp R	2	PHIL MAG		1205	609016	E	9K	Li		
Crisp R	2	PHIL MAG		365	619025	E	9K	Li		
Crisp R	1	THESIS U W AUST		1	619046	E	9K 0I	Li		100
Sagawa T	1	SCI REP TOHOKU	45	232	619095	E	9K 9S	Li		100
Tomboulia D	1	J QUAN SPECT RT		649	629122	R	9K	Li		
Goodings D	1	PROC PHYS SOC		86	75	659065	T	9K 6T 5N	Li	100
Allotey F	1	PHYS REV	157	467	679087	T	9K 5N 5B 5D 5F	Li		
Ausman G	2	BULL AM PHYSSOC	12	531	679092	T	9K 5Z	Li		
Rooke G	1	SXS BANDSPECTRA		3	689322	E	9K 9S 9T 5B 6T	Li		
Sagawa T	1	SXS BANDSPECTRA		29	689323	E	9K 5B 5D	Li		
Ausman G	2	PHYS REV	183	687	699001	T	9K 9I	Li		
Mc Alister A	1	PHYS REV	186	595	699058	T	9E 9K 6T	Li		100
Ausman G	1	THESIS U MD		1	699118	T	9K 9S 6O 6Q	Li		
Aita O	2	J PHYS SOC JAP	27	164	699204	E	9K 5B	Li		100
Nemnonov S	2	PHYS METALMETAL	28	68	699218	R	9K 5D 9A	Li		
Mc Mullen T	1	J PHYS	3C	2178	709123	T	9K 9I 6T 5B	Li		
Bergersen B	3	PREPRINT			719003	T	9K 9A	Li		100
Allotey F	1	SOLIDSTATE COMM	9	91	719020	T	9K 9S 6O	Li		100
Sagawa T	1	J PHYSIQUE	32S	186	719204	E	9K 9S	Li		100
Feser K	4	MUNICH SYMP			739016	E	9K 6S	Li		100
Crisp R	1	THESIS U W AUST		1	619046	E	9L 0I	LiAl		
							9K 0I	LiAl		
							9K 0I	LiCu		
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q 0O	LiF		50
Catterall J	2	PHIL MAG	4	1164	599008	E	9K	LiMg	05	55
							9L	LiMg	05	55
Crisp R	2	PHIL MAG	5	1205	609016	E	9K	LiMg	15	70
							9L	LiMg	15	70
Crisp R	1	THESIS U W AUST		1	619046	E	9K 0I	LiMg	15	70
							9L 0I	LiMg	15	70
Sumbaev O	6	SOV PHYS JETP	26	891	689189	E	9K 5N	LuO	40	100
Hayashi T	1	SCI REP TOHOKU	31	1	429000	T	9S 9K	Mg		
Sen A	1	INDIAN J PHYS	30	415	569025	E	9L 9K 5B	Mg		
Callon P	1	COMPT REND	248	1985	599009	E	9K	Mg		
Konstantinov A	3	BULLACADSCIUSSR	28	103	619119	E	9C 9K 9R	Mg		
Demjochin W	2	RONTGENCHEMBIND		58	669149	E	9K 9S 9I 4L 4A	Mg		100
Demekhin V	2	BULLACADSCIUSSR	31	921	679162	E	9S 9I 9K	Mg		

a. K-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Fischer D	2	NORELCO REPORTR	14	92	679387	R	9K 9S	Mg		100
Dodd C	2	J APPL PHYS	39	5377	689319	E	9K 00	Mg		100
Cauchois Y	1	SXS BANDSPECTRA		71	689326	E	9K	Mg		
Nemmonov S	2	PHYS METALMETAL	28	68	699218	R	9K 9L 5D	Mg		
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9K	Mg		100
Senemaud C	2	J PHYSIQUE	32S	193	719205	E	9K	Mg		100
Senemaud C	1	J PHYSIQUE	32	89	719210	E	9E 9K 5D	Mg		
Neddermey H	1	MUNICH SYMP			739015	E	9K	Mg		100
Farineau J	1	ANN PHYS	10	20	389001	E	9K	MgAl	40	60
Cauchois Y	1	COMPT REND	231	574	509000	E	9K 6P	MgAl	90	99
Kurylenko C	1	CAHIERS PHYS	20	333	669130	E	9K	MgAl		62
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	MgAl	10	100
Fischer D	2	ADV XRAY ANALYS	10	374	679041	E	9K 9S 9I 6P 4L	MgAl	10	100
Fischer D	2	NORELCO REPORTR	14	92	679387	R	9K	MgAl	30	100
Neddermey H	1	PHYS LET	38A	329	729045	E	9K 9L	MgAl	40	60
Neddermey H	1	BAND STRU SPECT		153	739002	E	9K 9L	MgAl	05	60
Cauchois Y	1	COMPT REND	231	574	509000	E	9K 6P	MgAlCu	94	95
								MgAlCu		04
								MgAlCu	01	02
Vainshtein E	2	SOV PHYS DOKL	1	527	569031	E	9K	MgAlCu		17
								MgAlCu		67
								MgAlCu		16
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	MgCu	00	67
Catterall J	2	PHIL MAG	4	1164	599008	E	9K	MgLi	05	55
							9L	MgLi	05	55
Crisp R	2	PHIL MAG	5	1205	609016	E	9K	MgLi	15	70
							9L	MgLi	15	70
Crisp R	1	THESIS U W AUST		1	619046	E	9K 0I	MgLi	15	70
							9L 0I	MgLi	15	70
O Bryan H	2	PROC ROY SOC	176A	229	409003	E	9K 5B 4L 00	MgO		50
Callon P	1	COMPT REND	248	1985	599009	E	9K	MgO		50
Lukirskii A	3	OPT SPECTR	16	372	649115	E	9K	MgO		50
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 4L 5B 9I 00	MgO		50
Demjoohin W	2	RONTGENCHEMBIND		58	669149	E	9K 9S 9I 4L 4A	MgO		50
Demekhin V	2	BULLACADSCIUSSR	31	921	679162	E	9S 9I 9K	MgO		50
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q	MgO		50
Fischer D	2	NORELCO REPORTR	14	92	679387	R	9K 9S	MgO		50
Utraiainen J	5	Z NATURFORSCH	23A	1178	689210	E	9I 9K 9S 9C	MgO	50	100
Dodd C	2	J APPL PHYS	39	5377	689319	E	9K 00 9S	MgO		50
Bonnelle C	2	COMPT REND	268	65	699027	E	9K 9S	MgO		
Chun H	1	PHYS LET	31A	118	709005	E	9K 9S 4L 00	MgO	50	100
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9K	MgO		50
Senemaud C	1	J PHYSIQUE	32	89	719210	E	9E 9K 5D	MgO		
Nicholls C	2	MUNICH SYMP			739012	E	9K	MgO		50
Cauchois Y	1	COMPT REND	231	574	509000	E	9K 6P	MgSiAl		97
								MgSiAl		01
								MgSiAl		02
Vainshtein E	3	SOVPHYS SOLIDST	7	1707	669227	E	9K 9G 9S 4L 00	MgX X		
Neddermey H	1	MUNICH SYMP			739015	E	9K	MgZn	33	90
							9L	MgZn	33	90
Pearsall A	1	PHYS REV	48	133	359001	E	9S 9K	Mn		
Parratt L	1	PHYS REV	50	1	369003	E	9S 9K	Mn		
Edamoto I	1	SCI REP TOHOKU	2A	561	509005	E	9K 9F	Mn		
Sawada M	4	J PHYS SOC JAP	10	647	559022	E	9K 9S	Mn		
Nemoshkalenk V	1	SOV PHYS DOKL	8	78	639120	E	9K 9S 9I 4B	Mn		

a. K-Spectra—Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Vainshtein E	3	SOVPHYS SOLIDST	7	1707	669227	E	9K 9G 9S 4L	Mn		(1)
Fischer B	2	Z PHYSIK	204	122	679137	E	9K 9H 9I 4X	Mn		
Nemoshkalenk V	2	BULLACADSCIUSSR	31	1005	679178	E	9K 5D 5B	Mn		100
Kirichok P	2	UKRAIN PHYS J	13	66	689063	E	9K 9S 4L	Mn		
Nemnonov S	2	PHYS METALMETAL	25	179	689366	E	9A 9K 9G	Mn		100
Finkelshtein L	2	PHYS METALMETAL	26	102	689370	E	9K 9A	Mn		100
Nemoshkalenk V	2	UKRAIN PHYS J	13	847	699108	E	9K 9C	Mn		100
Leonhardt G	2	X RAY CONF KIEV	2	342	699304	E	9K 4B 3Q	Mn		
Shashkina T	1	PHYS STAT SOLID	44B	571	719097	E	9K 9I	Mn		100
Kotlyar B	2	NAUCH ZAPISKI	22	71	589014	E	9K	Mn AlCu	08	25
								Mn AlCu	50	79
								Mn AlCu	23	25
								Mn AlCu		25
								Mn AlCu		50
								Mn AlCu		25
								MnB	20	67
Shashkina T	1	PHYS STAT SOLID	44B	571	719097	E	9K 9I	MnC Co		
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9K	MnC Co		
								MnC Co		
Holliday J	1	J APPL PHYS	38	4720	679258	E	9K	MnC Fe		
								MnC Fe		
Finkelshtein L	2	PHYS METALMETAL	26	102	689370	E	9K 9A	MnCr	07	55
Kotlyar B	2	NAUCH ZAPISKI	22	71	589014	E	9K	MnCu	66	90
Austin A	2	J SOLID ST CHEM	1	229	709003	E	9K	MnGe	17	67
Kazantsev V	1	BULLACADSCIUSSR	20	97	569003	E	9K 9A	MnNi		
Kazantsev V	1	SOV PHYS DOKL	3	1249	599021	E	9K	Mn Ni		
Kazantsev V	1	SOV PHYS DOKL	6	786	629103	E	9K 9S	MnNi		
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 0O	MnO		33
Vainshtein E	3	SOVPHYS SOLIDST	7	1707	669227	E	9K 9G 9S 4L	MnO	33	43 (1)
Kirichok P	2	UKRAIN PHYS J	13	66	689063	E	9K 9S 4L	MnO	33	50
Krause H	3	TECH REPORT AD	699	544	709013	E	9K 4L	MnO		33
							9K 4L	MnO		40
							9K 4L	MnO		43
							9K 4L	MnO		50
Krause H	3	JELECTROCHEMSOC	117	557	709042	E	9K 9E	MnO		
Faessler A	2	Z PHYSIK	138	71	549008	E	9G 9K 4L 5B 0O	MnS		50
Sugiura C	1	JAP J APPL PHYS	10	1120	719186	E	9A 9K 6P	MnS		50
Ovrutskaya R	3	PHYS METALMETAL	15	123	639096	E	9K 4B	MnTe		50 (2)
Nemnonov S	2	PHYS METALMETAL	25	179	689366	E	9A 9K 9C	MnV		50
Nemoshkalenk V	2	UKRAIN PHYS J	13	847	699108	E	9K 9C 3Q	MnV		81
Kirichok P	2	UKRAIN PHYS J	13	66	689063	E	9K 9S 0O 4L	MnX		
Shaw C	2	PHYS REV	50	1006	369006	E	9S 9K	Mo		
Gokhale B	1	COMPT REND	233	937	519008	E	9K 4A	Mo		
Gokhale B	1	ANN PHYSIQUE	7	852	529013	E	9K 4A 6L 5B	Mo		
Rogosa G	2	PHYS REV	92	1434	539011	E	9K 9L	Mo		
Slivinsky V	2	PHYS LET	29A	463	699110	E	9I 9K 9C	Mo		
Blau W	1	X RAY CONF KIEV	2	188	699298	E	9S 9I 9K 9Q	Mo		
Holliday J	1	RONTGENCHEMBIND	139	669203	E	9K 4L 4A	MoC		33	
Holliday J	1	ADV XRAY ANALYS	9	365	669246	E	9K 4L	MoC		33
Holliday J	1	J APPL PHYS	38	4720	679258	E	9K	MoC		33
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9K	MoC		67
Borovskii I	5	BULLACADSCIUSSR	21	1389	579060	E	9K 9S	MoCr	5	18
							9A 9K 6P	MoCr	00	100
Borovskii I	2	PHYSMETALMETAL	7	61	599006	E	9K 9A 6P	MoCr	99	100

(1) 300 °C (2) 12 °C to 82 °C

a. K-Spectra—Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Zhurakovs E	2	SOV PHYS DOKL	14	710	709183	E	9A 9L	Mo Cr	99	100
Zhurakovs E	1	J CHEM PHYS	42	3814	659064	E	9K 4L 3Q	MoN		67
Sumbaev O	5	SOV PHYS JETP	23	572	669093	E	9K 4L 5B 9I 0O	MoO		25
Sumbaev O	6	SOV PHYS JETP	26	891	689189	E	9K 5N	MoO		25
Wiech G	2	BAND STRU SPECT	173	739007	E	9K 5N		MoSi		100
Fischer D	2	J CHEM PHYS	43	2075	659092	E	9K 9L	N Al		33
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 4A	N Al		50
Domaschew E	2	RONTGENCHEMBIND	70	669177	E	9K 6P		N Al		50
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S 9I 4L	N Al		50
Fomichev V	1	SOVPHYS SOLIDST	10	597	689224	E	9K 9S	N Al		50
							9L 6G 4L 5D 6T	N Al		50
							9K 6G 4L 5D 6T	N Al		50
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9K	N Al		50
Gwinner E	2	Z PHYSIK	107	449	379001	E	9K 4A 4B 4N	N B		50
O Bryan H	2	PROC ROY SOC	176A	229	409003	E	9K 5B 4L 0O	N B		50
Holliday J	1	J APPL PHYS	33	3259	629095	E	9K	N B		50
Lukirskii A	3	OPT SPECTR	16	372	649115	E	9K	N B		50
Nicholson J	2	XRAY ANALYS	7	497	649163	E	9K 0I	N B		50
Fischer D	2	J CHEM PHYS	43	2075	659092	E	9K 4A	N B		50
Fischer D	2	J APPL PHYS	37	768	669025	E	9K	N B		50
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	N B		50
Holliday J	1	RONTGENCHEMBIND	139	669203	E	9K 4L 4A		N B		50
Henke B	1	ADV XRAY ANALYS	9	430	669244	E	9K 0I	N B		50
Holliday J	1	ADV XRAY ANALYS	9	365	669246	E	9K 4L	N B		50
Hayasi T	2	SCI REP TOHOKUU	50	228	679151	E	9K 0I	N B		50
Fomichev V	1	BULLACADSCIUSSR	31	972	679172	E	9A 9K 9V	N B		50
							9A 9K 9V	N B		50
Fischer D	2	NORELCO REPORTR	14	92	679387	R	9K 9R	N B		50
Holliday J	1	NORELCO REPORTR	14	84	679388	E	9K	N B		50
Fomichev V	2	J PHYS CHEM SOL	29	1015	689140	E	9K 3N 6H	N B		50
Hayasi Y	1	SCI REP TOHOKUU	51	43	689367	E	9K 3Q 9S 6P	N B		50
Rumsh M	4	VESTNIKLEN UNIV	16	49	689371	E	9K 9A	N B		50
Hayasi T	2	X RAY CONF KIEV	1	307	699286	R	9E 9K 3Q	N B		50
Zhurakovs E	2	SOV PHYS DOKL	14	710	709183	E	9K 4L 3Q	N B		50
Nemoshkalenik V	2	SOVPHYS SOLIDST	12	46	709196	R	9K 5D	N B		50
Fomichev V	3	SOVPHYS SOLIDST	12	123	709217	E	9K 9S 6G 0O	N B		50
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9K	N B		50
Nakhmanso M	2	SOVPHYS SOLIDST	12	1966	719042	T	9A 9K	N B		50
Frantsevi A	3	SOV PHYS DOKL	15	970	719050	E	9K 3Q	N B		50
Fomichev V	1	SOVPHYS SOLIDST	13	754	719170	R	9A 9K	N B		50
Menshikov A	2	PHYS METALMETAL	19	52	659088	E	9A 9K 9C 2S 2B	N C	50	67
Menshikov A	2	BULLACADSCIUSSR	27	402	639116	E	9K 9S 3Q	N Cr	50	67
Nemnonov S	4	PHYS METALMETAL	25	107	689194	E	9K 9S 5B	N Cr	50	67
Zhurakovs E	2	SOV PHYS DOKL	14	710	709183	E	9K 4L 3Q	N Cr	50	67
							9K 4L 3Q	N Hf		50
							9K 4L 3Q	N Mo		67
							9K 4L 3Q	N Nb		50
Zhurakovs E	3	SOV PHYS DOKL	11	814	679117	E	9C 9K 4L 5B 9F	N Se		50
Zhurakovs E	2	SOV PHYS DOKL	14	710	709183	E	9K 4L 3Q	N Se		50
Fischer D	2	J CHEM PHYS	43	2075	659092	E	9K 4A	N Si		57
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	N Si		57
Zhukova I	4	SOVPHYS SOLIDST	10	1097	689258	E	9L 6G 5B 5D 4L	N Si		57
							9K 6G 5B 5D 4L	N Si		57
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9K	N Si		57
Nemnonov S	5	TRANSMETSOCAIME	245	1191	699104	R	9K 9A 9L 5D 3Q	N T		57

a. K-Spectra—Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Nemnonov S	2	PHYS METALMETAL	27	51	699115	R	9K 9S 3Q	N T		50
Zhurakovs E	2	SOV PHYS DOKL	14	710	709183	E	9K 4L 3Q	N Ta		50
Vainshtein E	2	SOV PHYS DOKL	2	207	579038	E	9K 9S	N Ti		50
Vainshtein E	2	SOV PHYS DOKL	4	1050	599037	E	9K	N Ti		50
Zhurakovs E	2	SOV PHYS DOKL	4	1308	599067	R	9K 9S	N Ti		50
Vainshtein E	2	SOV PHYS DOKL	4	1050	609085	E	9C 9K 3Q	N Ti		50
Vainshtein E	2	SOV PHYS DOKL	7	724	629131	E	9K 4L	N Ti		
Vainshtein E	2	SOV PHYS DOKL	7	724	639028	E	9K 9S	N Ti		50
Fischer D	2	J CHEM PHYS	43	2075	659092	E	9K 4A	N Ti		50
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	N Ti		50
Nemnonov S	2	PHYS METALMETAL	22	36	669141	E	9A 9K 3Q 9I 9S	N Ti		50
							5D	N Ti		
Holliday J	1	ADV XRAY ANALYS	9	365	669246	E	9K 4L	N Ti		50
Nemnonov S	1	PHYS METALMETAL	24	66	679213	R	9K 9L	N Ti		50
Brytov I	3	SOVPHYS SOLIDST	10	621	689041	E	9K 9I 9S 3Q	N Ti		50
							9L 9I 9S 3Q	N Ti		50
Nemnonov S	4	PHYS METALMETAL	25	107	689194	E	9K 9S 5B	N Ti		50
Ramqvist L	5	J PHYS CHEM SOL	30	1849	699087	E	9A 9K 3Q 3Q	N Ti		50
Zhurakovs E	2	SOV PHYS DOKL	14	710	709183	E	9K 4L 3Q	N Ti		50
Fischer D	1	J APPL PHYS	41	3922	709186	R	9K 5B	N Ti		50
							9L 9A 5B	N Ti		50
Ramqvist L	5	J PHYS CHEM SOL	32	149	719000	R	9K 9L 3Q 5B	N Ti		50
Vainshtein E	2	SOV PHYS DOKL	7	724	639028	E	9K 9S	N TiC	11	21
								N TiC	29	39
								N TiC		50
Dzeganovskii V	2	SOV PHYS DOKL	11	349	669144	E	9K 9C 3Q 4L	N V		50
Nemnonov S	4	PHYS METALMETAL	25	107	689194	E	9K 9S 5B	N V		50
Brytov I	3	PHYS METALMETAL	26	178	689363	E	9K 9S 5B	N V		50
Zhurakovs E	2	SOV PHYS DOKL	14	710	709183	E	9K 4L 3Q	N V		50
Holliday J	1	RONTGENCHEMBIND	139	669203	E	9K 4L 4A		N Zr		50
Holliday J	1	ADV XRAY ANALYS	9	365	669246	E	9K 4L	N Zr		50
Zhurakovs E	2	SOV PHYS DOKL	14	710	709183	E	9K 4L 3Q	N Zr		50
Sen A	1	INDIAN J PHYS	30	415	569025	E	9L 9K 5B	Na		
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q 00	NaF		50
Utraiainen J	5	Z NATURFORSCH	23A	1178	689210	E	9I 9K 9S 9C 00	NaF		50
Fischer D	1	J PHYS CHEM SOL	32	2455	719147	E	9K 9A	NaO Cr		14
							9L 9A	NaO Cr		29
								NaO Cr		57
Shaw C	2	PHYS REV	50	1006	369006	E	9S 9K	Nb		
Gokhale B	1	COMPT REND	233	937	519008	E	9K 4A	Nb		
Bhide V	2	MUNICH SYMP			739017	E	9K 9V	Nb		100
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	NbB		67
Frantsevi A	3	SOV PHYS DOKL	15	970	719050	E	9K 3Q	NbB		60
Fischer D	2	J CHEM PHYS	43	2075	659092	E	9K 4A	NbC		50
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	NbC		50
Holliday J	1	RONTGENCHEMBIND	139	669203	E	9K 4L 4A		NbC		50
Holliday J	1	ADV XRAY ANALYS	9	365	669246	E	9K 4L	NbC		50
Holliday J	1	J APPL PHYS	38	4720	679258	E	9K	NbC		50
Holliday J	1	SXS BANDSPECTRA	101	689329	E	9K		NbC		50
							9M 5D	NbC		50
Zhurakovs E	1	SOV PHYS DOKL	14	168	699149	E	9K 5B	NbC		50
Ramqvist L	5	J PHYS CHEM SOL	32	149	719000	E	9L 4L 9V 5V 3Q	NbC	43	48
							9K 4L 9V 5V 3Q	NbC	43	48
Zhurakovs E	2	SOV PHYS DOKL	14	710	709183	E	9K 4L 3Q	NbN		50
Gokhale B	1	ANN PHYSIQUE	7	852	529013	E	9K 4A 6L 5B	NbO		50
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 4L 5B 9I 00	NbO		29
							9K 00	NbO		40

a. K-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Sumbaev O	6	SOV PHYS JETP	26	891	689189	E	9K 5N	NbO	14	100
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	NaAl		67
Horak Z	1	PROC PHYS SOC	77	980	619039	T	9K 9L 9S 0O	Ne		
Pearsall A	1	PHYS REV	48	133	359001	E	9S 9K	Ni		
Parratt L	1	PHYS REV	50	1	369003	E	9S 9K	Ni		
Friedman H	2	PHYS REV	58	400	409002	E	9K 9A	Ni		
Edamoto I	1	SCI REP TOHOKU	2A	561	509005	E	9K 9F	Ni		
Sawada M	4	J PHYS SOC JAP	10	647	559022	E	9K 9S	Ni		
Blokhin M	1	BULLACADSCIUSSR	20	127	569001	E	0D 5D 9E 9K	Ni		
Borisov N	2	PHYS METALMETAL	8	44	599004	E	9K 9S 4A	Ni		100
Nemoshkalenk V	1	SOV PHYS DOKL	8	78	639120	E	9K 9S 9I 4B	Ni		
Best P	1	BULL AM PHYSSOC	9	388	649103	R	9K 9S 4B	Ni		
Nikiforov I	2	BULLACADSCIUSSR	28	695	649118	E	9K 9S	Ni		
Nemoshkalenk V	3	PHYS STAT SOLID	30	703	689298	E	9K 6T	Ni		100
Farineau J	1	J PHYS RADIUM	10	327	399007	E	9K	NiAl	18	100
							9L	NiAl	00	89
Nemnonov S	2	BULLACADSCIUSSR	25	1015	619059	E	9A 9K	NiAl		25
Fischer D	2	PHYS REV	145	555	669148	E	9K 9S 9I 4L 5B	NiAl	4	100
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	NiAl	04	100
Fischer D	2	ADV XRAY ANALYS	10	374	679041	E	9K 9S 9I 6P 4L	NiAl	41	100
Fischer D	2	NORELCO REPORTR	14	92	679387	R	9K	NiAl	20	100
Nemnonov S	4	PHYS STAT SOLID	43	319	719055	E	9K	NiAl		60
Borisov N	2	PHYS METALMETAL	8	44	599004	E	9K 9S 4A	NiCrFe		26
								NiCrFe		58
								NiCrFe		16
Borisov N	3	BULLACADSCIUSSR	24	451	609010	E	9K 4A 6P	NiCrFe	50	60 (1)
								NiCrFe		40 (1)
							9K 4A 6P	NiCrFe	0	10 (1)
Friedman H	2	PHYS REV	58	400	409002	E	9K 9A	NiCu	20	70
Sasovskay I	3	PHYS METALMETAL	27	78	699352	E	9K 9C	NiFe		70
Austin A	2	J SOLID ST CHEM	1	229	709003	E	9K	NiGe	17	67 (2)
Kazantsev V	1	BULLACADSCIUSSR	20	97	569003	E	9K 9A	NiMn		
Kazantsev V	1	SOV PHYS DOKL	3	1249	599021	E	9K	NiMn		
Kazantsev V	1	SOV PHYS DOKL	6	786	629103	E	9K 9S	NiMn		
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 0O	NiO		50
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q	NiO		50
Menshikov A	3	PHYS STAT SOLID	35	89	699182	E	9K 5X 5B	NiO		50
							9L	NiO		50
Sugiura C	1	JAP J APPL PHYS	10	1120	719186	E	9A 9K 6P	NiS		50
Kallne E	2	MUNICH SYMP			739011	E	9K	NiTi		
Nemnonov S	4	PHYS STAT SOLID	46	77	719169	E	9K	NiV		90
Nemnonov S	6	BAND STRU SPECT		237	739006	E	9K	NiV		90
Bearden J	2	PHYS REV	58	396	409000	E	9A 9K 9S	NiZn	70	83
Fischer D	1	TECH REPORT AD	713	100	709312	R	9K 9A	O		
O Bryan H	2	PROC ROY SOC	176A	229	499003	E	9K 5B 4L 0O	O Al		40
Nordfors B	1	PROC PHYS SOC	68A	654	559017	E	9K 9S 9I 4L	O Al		40
Nordfors B	1	ARKIV FYSIK	10	279	569024	E	9K 9S 9I 9R 4L	O Al		40
Nemnonov S	2	BULLACADSCIUSSR	25	1015	619059	E	9A 9K	O Al		40
Baun W	2	PHYS LET	13	36	649133	E	9K 9S 9I	O Al		40
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 0O	O Al		40
Fischer D	2	J APPL PHYS	36	534	659070	E	9K 9S	O Al		40
Fischer D	2	J APPL PHYS	37	768	669025	E	9K	O Al		40
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	O Al		40
Senemaud C	1	J PHYSIQUE COLL	27	55	669055	E	9K 9C	O Al		40
Bonnelie C	3	RONTGENCHEMBIND		20	669139	E	9E 9C 9K	O Al		40

(1) 1000 °C (2) RT to 300 °C

a. K-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Senemaud C	1	J PHYS RADIUM	27C	55	669142	E	9A 9K 9C 4L 9R	O Al		40
Demjoojin W	2	RONTGENCHEMBIND		58	669149	E	9K 9S 9I 4L 4A	O Al		40
Domaschew E	2	RONTGENCHEMBIND		70	669177	E	9K 9S 9I 4L	O Al		40
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	O Al		40
Fischer D	2	ADV XRAY ANALYS	10	374	679041	E	9K 9S 9I 6P 4L	O Al		40
Fomichev V	1	SOVPHYS SOLIDST	8	2312	679102	E	9A 9K 4L 5D 9R	O Al		40
Nemoshkalenik V	2	UKRAIN PHYS J	12	812	679107	E	9K 9S	O Al		40
Demekhin V	2	BULLACADSCIUSSR	31	921	679162	E	9S 9I 9K	O Al		40
Senemaud C	1	COMPT REND	265	403	679240	E	9K 9C	O Al		40
Fischer D	2	NORELCO REPORTR	14	92	679387	R	9K 9S	O Al		40
Utriainen J	5	Z NATURFORSCH	23A	1178	689210	E	9I 9K 9S 9C	O Al	40	100
Demekhin V	2	PHYS METALMETAL	26	178	689237	E	9K 9C 9S 4A 4L	O Al		40
Dodd C	2	J APPL PHYS	39	5377	689319	E	9K 00 9S	O Al		40
Cauchois Y	1	SXS BANDSPECTRA		71	689326	E	9K	O Al		40
Chun H	2	PHYS LET	28A	334	689357	E	9K 4N	O Al		40
							9K	O Al		40
Rumsh M	4	VESTNIKLEN UNIV	16	49	689371	E	9K 9A	O Al		40
							9L 9A	O Al		40
Bonnelle C	2	COMPT REND	268	65	699027	E	9K 9S	O Al		40
Nemoshkalenik V	4	UKRAIN PHYS J	13	837	699109	R	9K 9L	O Al		40
Nemnonov S	2	PHYS METALMETAL	27	51	699115	R	9K 9S 3Q	O Al		40
Chun H	2	Z NATURFORSCH	24A	930	699133	E	9K 9F 6U 6P	O Al		40
							9K 9L	O Al		40
Chun H	1	PHYS LET	31A	118	709005	E	9K 9S 4L 00	O Al	40	100
Gigl P	3	ELECTROCHEMSOC	117	15	709041	E	9K 4L	O Al		40
Maruno S	2	JAP J APPL PHYS	9	1428	709234	E	9K 4A	O Al		40
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9K	O Al		40
Gwinner E	2	Z PHYSIK	107	449	379001	E	9K 4A 4B 4N	O B		40
O Bryan H	2	PROC ROY SOC	176A	229	409003	E	9K 5B 4L 00	O B		40
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 00	O B		40
Henke B	2	J APPL PHYS	37	922	669013	E	9K 9C 4L	O B		40
Fischer D	2	J APPL PHYS	37	768	669025	E	9K	O B		40
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	O B		40
Henke B	1	ADV XRAY ANALYS	9	430	669244	E	9K 0I	O B		40
Hayasi T	2	SCI REP TOHOKUU	50	228	679151	E	9K 0I	O B		40
Fischer D	2	NORELCO REPORTR	14	92	679387	R	9K 9R	O B		40
Hayasi Y	1	SCI REP TOHOKUU	51	43	689367	E	9K 3Q 9S 6P	O B		40
Hayasi T	2	X RAY CONF KIEV	1	307	699286	R	9E 9K 3Q	O B		40
Fomichev V	3	SOVPHYS SOLIDST	12	123	709217	E	9K 9S 6C	O B		40
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9K	O B		40
Nakhmanso M	2	SOVPHYS SOLIDST	12	1966	719042	T	9A 9K	O B		40
Frantsev A	3	SOV PHYS DOKL	15	970	719050	E	9K 3Q	O B		40
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q	O Ba		50
Sumbaev O	6	SOV PHYS JETP	26	891	689189	E	9K 5N	O Ba	50	100
Kolobova K	3	SOVPHYS SOLIDST	10	571	689040	E	9K 9F 9C 9S	O BaFe		20
O Bryan H	2	PROC ROY SOC	176A	229	409003	E	9K 5B 4L 00	O Be		50
Lukirskii A	2	SOVPHYS SOLIDST	6	33	649089	E	9A 9K 6H	O Be		50
Henke B	2	J APPL PHYS	37	922	669013	E	9K 9C 4L	O Be		50
Ehlert R	2	ADV XRAY ANALYS	9	456	669241	E	9K	O Be		50
Henke B	1	ADV XRAY ANALYS	9	430	669244	E	9K 0I	O Be		50
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q	O Be		50
Fischer D	2	NORELCO REPORTR	14	92	679387	R	9K 9R	O Be		50
Holliday J	1	NORELCO REPORTR	14	84	679388	E	9K	O Be		50
Hayasi Y	1	SCI REP TOHOKUU	51	1	689109	E	9K 9S	O Be		50
Hayasi T	2	X RAY CONF KIEV	1	307	699286	R	9E 9K 3Q	O Be		50

a. K-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9K	O Be		50
Fomichev V	1	SOVPHYS SOLIDST	13	754	719170	R	9A 9K	O Be		50
Manne R	1	J CHEM PHYS	52	5733	709201	T	9K 9V 0O 9I 6T	O C	33	50
								O C	33	50
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 4L 5B 9I 0O	O Ca		50
Finkelshtein L	2	PHYS METALMETAL	22	38	669161	E	9A 9K	O Ca		
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q	O Ca		50
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 0O	O Cd		50
							9K 0O	O Co	40	43
Menshikov A	3	PHYS STAT SOLID	35	89	699182	E	9K 5X 5B	O Co		50
							9L	O Co		50
Menshikov A	1	PHYS METALMETAL	14	118	629126	E	9K 0D	O Cr		40
Menshikov A	2	BULLACADSCIUSSR	27	402	639116	E	9K 9S 3Q	O Cr		40
Shuvaev A	2	BULLACADSCIUSSR	27	331	639117	E	9K 9S 4L 4A	O Cr		40
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 4L 5B 9I 0O	O Cr		40
Menshikov A	2	PHYS METALMETAL	19	52	659088	E	9A 9K 9C 2S 2B	O Cr		40
Nemnonov S	4	PHYS METALMETAL	25	107	689194	E	9K 9S 5B	O Cr		40
Nemoshkalen V	4	UKRAIN PHYS J	13	837	699109	E	9L	O Cr		40
							9A 9K	O Cr		40
Fischer D	1	J PHYS CHEM SOL	32	2455	719147	E		O Cr	25	40
							9K 9A	O Cr	25	40
							9K 9A	O CrK		14
							9L 9A	O CrK		29
								O CrK		57
							9K 9A	O CrNa		14
							9L 9A	O CrNa		29
								O CrNa		57
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 0O	O Cu	50	67
Menshikov A	3	PHYS STAT SOLID	35	89	699182	E	9K 5X 5B	O Cu		50
							9L	O Cu		50
Akopdzhano R	1	SOVPHYS SOLIDST	12	1095	709228	E	9A 9K 9S 5B	O Cu		67
							9L 5B	O Cu		67
							9K	O Cu		67
							9L	O Cu		67
Holliday J	1	J APPL. PHYS	33	3259	629095	E	9K	O Fe		43
Nicholson J	2	XRAY ANALYS	7	497	649163	E	9E 9K	O Fe		43
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 4L 5B 9I 0O	O Fe	40	43
Kolobova K	3	PHYS METALMETAL	21	132	669018	E	9K 9C	O Fe		50
Kolobova K	3	SOVPHYS SOLIDST	10	571	689040	E	9K 9F 9C 9S	O Fe	40	50
Kirichok P	2	UKRAIN PHYS J	13	66	689063	E	9K 9S 4L	O Fe	40	50
Menshikov A	3	PHYS STAT SOLID	35	89	699182	E	9K 5X 5B	O Fe		50
							9L	O Fe		50
Krause H	3	TECH REPORT AD	699	544	709013	E	9K 4L	O Fe		40
							9K 4L	O Fe		43
							9K 4L	O Fe		50
Krause H	3	JELECTROCHEMSOC	117	557	709042	E	9K 9E	O Fe	40	50
Chun H	2	Z NATURFORSCH	24A	930	699133	E	9K 9F 6U 6P	O Ga		40
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 0O	O Ge		33
							9K 4L 5B 9I 0O	OHf		33
Sumhaev O	6	SOV PHYS JETP	26	891	689189	E	9K 5N	O Hf	33	100
Chun H	2	Z NATURFORSCH	24A	930	699133	E	9K 9F 6U 6P	O In		40
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q	O La		60
Sumbaev O	6	SOV PHYS JETP	26	891	689189	E	9K 5N	O La	40	100
							9K 5N	O Lu	40	100
O Bryan H	2	PROC ROY SOC	176A	229	409003	E	9K 5B 4L 0O	O Mg		50
Callon P	1	COMPT REND	248	1985	599009	E	9K	O Mg		50

a. K-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Lukirskii A	3	OPT SPECTR	16	372	649115	E	9K	O Mg		50
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 4L 5B 9I 0O	O Mg		50
Demjoohin W	2	RONTGENCHEMBIND		58	669149	E	9K 9S 9I 4L 4A	O Mg		50
Demekhin V	2	BULLACADSCIUSSR	31	921	679162	E	9S 9I 9K	O Mg		50
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q	O Mg		50
Fischer D	2	NORELCO REPORTR	14	92	679387	R	9K 9S	O Mg		50
Utriainen J	5	Z NATURFORSCH	23A	1178	689210	E	9I 9K 9S 9G	O Mg	50	100
Dodd C	2	J APPL PHYS	39	5377	689319	E	9K 00 9S	O Mg		50
Bonnelle C	2	COMPT REND	268	65	699027	E	9K 9S	O Mg		
Chun H	1	PHYS LET	31A	118	709005	E	9K 9S 4L 0O	O Mg	50	100
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9K	O Mg		50
Senemaud C	1	J PHYSIQUE	32	89	719210	E	9E 9K 5D	O Mg		
Nicholls C	2	MUNICH SYMP			739012	E	9K	O Mg		50
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 0O	O Mn		33
Vainshtein E	3	SOVPHYS SOLIDST	7	1707	669227	E	9K 9C 9S 4L	O Mn	33	43
Kirichok P	2	UKRAIN PHYS J	13	66	689063	E	9K 9S 4L	O Mn	33	50
Krause H	3	TECH REPORT AD	699	544	709013	E	9K 4L	O Mn		33
							9K 4L	O Mn		40
							9K 4L	O Mn		43
							9K 4L	O Mn		50
Krause H	3	JELECTROCHEMSOC	117	557	709042	E	9K 9E	O Mn		
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 4L 5B 9I 0O	O Mo		25
Sumbaev O	5	SOV PHYS JETP	23	572	669093	E	9K 5N	O Mo		25
Sumbaev O	6	SOV PHYS JETP	26	891	689189	E	9K 5N	O Mo	25	100
Gokhale B	1	ANN PHYSIQUE	7	852	529013	E	9K 4A 6L 5B	O Nb		50
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 4L 5B 9I 0O	O Nb		29
							9K 0O	O Nb		40
Sumbaev O	6	SOV PHYS JETP	26	891	689189	E	9K 5N	O Nb	14	100
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 0O	O Ni		50
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q	O Ni		50
Menshikov A	3	PHYS STAT SOLID	35	89	699182	E	9K 5X 5B	O Ni		50
							9L	O Ni		50
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 0O	O Pb	50	67
Faessler A	2	Z PHYSIK	138	71	549008	E	9C 9K 4L 5B 0O	O S Ca		17
								O S Ca		67
								O S Ca		16
							9C 9K 4L 5B 0O	O S K		29
								O S K		57
								O S K		14
Zhurakovs E	3	SOV PHYS DOKL	11	814	679117	E	9C 9K 4L 5B 9F	O Se		50
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q	O Se		60
Kern B	1	Z PHYSIK	159	178	609025	E	9K	O Si	00	67
Das Gupta K	1	TECH REPORT AC	412	791	639088	E	9K 5B	O Si		67
Demekhin V	2	BULLACADSCIUSSR	28	733	649139	E	9K 9S 9I 4L	O Si		67
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 0O	O Si		67
Demjoohin W	2	RONTGENCHEMBIND		58	669149	E	9K 9S 9I 4L 4A	O Si		67
Henke B	1	ADV XRAY ANALYS	9	430	669244	E	9K 0I	O Si		67
Demekhin V	2	BULLACADSCIURRS	31	921	679162	E	9S 9I 9K	O Si	00	67
Ershov O	2	SOVPHYS SOLIDST	8	1699	679316	E	9L 6U	O Si		67
							9A 9K 9S	O Si		67
Fischer D	2	NORELCO REPORTR	14	92	679387	R	9K 9S	O Si		67
Utriainen J	5	Z NATURFORSCH	23A	1178	689210	E	9I 9K 9S 9G	O Si	00	67
Wiech G	1	SXS BANDSPECTRA		59	689325	E	9L 5D 5B	O Si	00	67
							9K 5D 5B	O Si	00	67
Chun H	1	PHYS LET	31A	118	709005	E	9K 9S 4L 0O	O Si	67	100

a. K-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Urch D	1	J PHYS	3C	1275	709220	T	9S 9K 9L 9I 4L	O Si		80
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9K	O Si		67
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q	O Sm		60
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 4L 5B 9I 0O	O Sn		50
Sumbaev O	5	SOV PHYS JETP	23	572	669093	E	9K 5N	O Sn	00	67
Gokhale B	3	PHYS REV LET	18	957	679057	E	9G 9K 4L 4N 5D	O Sn		50
							9G 9K 4L 4N 5D	O Sn		67
Gokhale B	1	ANN PHYSIQUE	7	852	529013	E	9K 4A 6L 5B	O Sr		50
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q	O Sr		50
Sumbaev O	6	SOV PHYS JETP	26	891	689189	E	9K 5N	O Sr	00	50
Nemnonov S	5	TRANSMETSOCAIME	245	1191	699104	R	9K 9A 9L 5D 3Q	O T		
Nemnonov S	2	PHYS METALMETAL	27	51	699115	R	9K 9S 3Q	O T		50
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 4L 5B 9I 0O	O Ta		60
Sumbaev O	6	SOV PHYS JETP	26	891	689189	E	9K 5N	O Ta	00	86
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 0O	O Th		67
Vainshtein E	2	SOV PHYS DOKL	2	207	579038	E	9K 9S	O Ti		67
Zhurakovs E	2	SOV PHYS DOKL	4	1308	599067	R	9K 9S	O Ti		67
Vainshtein E	2	SOV PHYS DOKL	9	697	649143	E	9K 9I	O Ti	46	54
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 0O	O Ti		67
Nemnonov S	2	PHYS METALMETAL	22	36	669141	E	9A 9K 3Q 9I 9S	O Ti		50
Batyrev V	2	BULLACADSCIUSSR	31	896	679158	E	9K 4L	O Ti	50	67
Nemnonov S	1	PHYS METALMETAL	24	66	679213	R	9K 9L	O Ti		50
Chirkov V	3	SOVPHYS SOLIDST	9	873	679243	E	9A 9K 4L	O Ti	50	75 (1)
Holliday J	1	NORELCO REPORTR	14	84	679388	R	9L	O Ti	20	66
							9K	O Ti	20	66
Kolobova K	3	SOVPHYS SOLIDST	10	571	689040	R	9A 9K	O Ti		
Brytov I	3	SOVPHYS SOLIDST	10	621	689041	E	9K 9I 9S 3Q	O Ti	48	54
							9L 9I 9S 3Q	O Ti	48	54
Nemnonov S	4	PHYS METALMETAL	25	107	689194	E	9K 9S 5B	O Ti		50
Ramqvist L	5	J PHYS CHEM SOL	30	1849	699087	E	9A 9K 30 3Q	O Ti		50
Menshikov A	3	PHYS STAT SOLID	35	89	699182	E	9K 5X 5B	O Ti		50
							9L	O Ti		50
Krause H	3	TECH REPORT AD	699	544	709013	E	9K 4L	O Ti		45
							9K 4L	O Ti		50
							9K 4L	O Ti		60
							9K 4L	O Ti		67
Krause H	3	JELECTROCHEMSOC	117	557	709042	E	9K 9E	O Ti		
Fischer D	1	J APPL PHYS	41	3922	709186	R	9K 5B	O Ti		50
							9L 9A 5B	O Ti		50
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 4L 5B 9I 0O	O V		29
							9K 0O	O V		60
Dzeganovskii V	2	SOV PHYS DOKL	11	349	669144	E	9K 9C 3Q 4L	O V	60	71
Kurmaev E	4	BULLACADSCIUSSR	31	1011	679179	E	9A 9K 5B 3Q	O V	46	55
Nemnonov S	4	PHYS METALMETAL	25	107	689194	E	9K 9S 5B	O V		45
Fischer D	1	J APPL PHYS	40	4151	699173	E	9K 9R	O V	60	71
								O V	60	67
Menshikov A	3	PHYS STAT SOLID	35	89	699182	E	9K 5X 5B	O V		50
							9L	O V		50
Kurmaev E	4	BULLACADSCIUSSR	31	1011	679179	E	9A 9K 5B 3Q	O V C	23	33
								O V C	24	26
								O V C	41	53
Sumbaev O	5	SOV PHYS JETP	23	572	669093	E	9K 5N	O W	00	75
Sumbaev O	6	SOV PHYS JETP	26	891	689189	E	9K 5N	O W	00	75
Fischer D	1	APPL SPECTRY	25	263	719069	E	9K 0O	O X X		
Gokhale B	1	ANN PHYSIQUE	7	852	529013	E	9K 4A 6L 5B	O Y		60

(1) Did not exceed 100 °C

a. K-Spectra—Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q	O Y		60
Sumbaev O	6	SOV PHYS JETP	26	891	689189	E	9K 5N	O Y	00	60
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q	O Yb		60
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 00	O Zn		50
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q	O Zn		50
Gokhale B	1	ANN PHYSIQUE	7	852	529013	E	9K 4A 6L 5B	O Zr		67
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 4L 5B 9I 00	O Zr		33
							9K 00	O Zr		67
Sumbaev O	6	SOV PHYS JETP	26	891	689189	E	9K 5N	O Zr	00	67
Nemnonov S	6	BAND STRU SPECT		237	739006	E	9K	Os V		25
Wiech G	1	Z PHYSIK	216	472	689248	E	9L 9K 5B 4N 00	P		
Wiech G	1	X RAY CONF KIEV	2	25	699287	R	9K	P		
Domaschew E	2	RONTGENCHEMBIND		70	669177	E	9K 9S 9I 4L	P Al		50
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	P Al		50
Fischer D	2	ADV XRAY ANALYS	10	374	679041	E	9K 9S 9I 6P 4L	P Al		50
Wiech G	1	Z PHYSIK	216	472	689248	E	9L 9K 5B	P Al		50
Fischer D	2	J APPL PHYS	37	768	669025	E	9K	P B		50
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	P B		50
Fomichev V	3	J PHYS CHEM SOL	29	1025	689141	E	9K 6H 6U	P B		50
							9L 6H 6U	P B		50
Wiech G	1	Z PHYSIK	216	472	689248	E	9L 9K 5B	P B		50
Rumsh M	4	VESTNIKLEN UNIV	16	49	689371	E	9K 9A	P B		50
							9L 9A	P B		50
Nemoshkalenik V	2	SOVPHYS SOLIDST	12	46	709196	R	9L 9K 5D	P B		
Wiech G	1	Z PHYSIK	216	472	689248	E	9L 9K 5B	P Ga		50
							9L 9K 5B	P In		50
Kolobova K	2	PHYS METALMETAL	27	69	699351	R	9A 9K	P Ti		50
Wiech G	1	X RAY CONF KIEV	2	25	699287	R	9K	P X		
Slivinsky V	2	PHYS LET	29A	463	699110	E	9I 9K 9G	Pb		
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 00	PbO	50	67
Shaw C	2	PHYS REV	50	1006	369006	E	9S 9K	Pd		
Gokhale B	1	COMPT REND	233	937	519008	E	9K 4A	Pd		
Gokhale B	1	ANN PHYSIQUE	7	852	529013	E	9K 4A 6L 5B	Pd		
Slivinsky V	2	PHYS LET	29A	463	699110	E	9I 9K 9G	Pd		
Hedman J	9	PHYS SCRIPTA	4	195	719188	E	9L	PdCu		60
							9K	PdCu		60
Nemnonov S	4	PHYS STAT SOLID	46	77	719169	E	9K	PdV		25
Nemnonov S	6	BAND STRU SPECT		237	739006	E	9K	PdV		25
Slivinsky V	2	PHYS LET	29A	463	699110	E	9I 9K 9G	Pr		
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	PrAl		67
							9K 9L	PrSi		33
Kliever W	1	PHYS REV	56	387	399003	E	9K	Pt		
Nemnonov S	4	PHYS STAT SOLID	43	319	719055	E	9K	PtAl		67
Nemnonov S	4	PHYS STAT SOLID	46	77	719169	E	9K	PtV		25
Nemnonov S	6	BAND STRU SPECT		237	739006	E	9K	PtV		25
Shaw C	2	PHYS REV	50	1006	369006	E	9S 9K	Rb		
Gokhale B	1	COMPT REND	233	937	519008	E	9K 4A	Rb		
Gokhale B	1	ANN PHYSIQUE	7	852	529013	E	9K 4A 6L 5B 00	RbCl	50	
Shaw C	2	PHYS REV	50	1006	369006	E	9S 9K	Rh		
Gokhale B	1	COMPT REND	233	937	519008	E	9K 4A	Rh		
Gokhale B	1	ANN PHYSIQUE	7	852	529013	E	9K 4A 6L 5B	Rh		
Nemnonov S	4	PHYS STAT SOLID	46	77	719169	E	9K	RhV		25
Nemnonov S	6	BAND STRU SPECT		237	739006	E	9K	RhV		25
Shaw C	2	PHYS REV	50	1006	369006	E	9S 9K	Ru		
Gokhale B	1	COMPT REND	233	937	519008	E	9K 4A	Ru		

a. K-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Gokhale B	1	ANN PHYSIQUE	7	852	529013	E	9K 4A 6L 5B	Ru		
Nemnonov S	6	BAND STRU SPECT		237	739006	E	9K	Ru V		25
Parratt L	1	PHYS REV	49	502	369002	E	9S 9K 00	S		
Parratt L	1	PHYS REV	50	1	369003	E	9S 9K 00	S		
Faessler A	2	NATURWISSEN	39	169	529011	E	9G 9K 4L 00	S		
Faessler A	2	Z PHYSIK	138	71	549008	E	9G 9K 4L 5B 00	S		100
Sugiura C	1	J PHYS SOC JAP	30	1766	719075	E	9A 9K 00	S		100
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	S Al		50
Faessler A	2	Z PHYSIK	138	71	549008	E	9G 9K 5B 00	S Ca		50
							9G 9K 4L 5B 00	S CaO		17
								S CaO		67
								S CaO		16
Sugiura C	1	JAP J APPL PHYS	10	1120	719186	E	9A 9K 6P	S Co		50
							9A 9K 6P	S Cu		50
							9A 9K 6P	S Fe		50
Faessler A	2	Z PHYSIK	138	71	549008	E	9G 9K 4L 5B 00	S K O		29
								S K O		57
								S K O		14
							9G 9K 4L 5B 00	S Mn		50
Sugiura C	1	JAP J APPL PHYS	10	1120	719186	E	9A 9K 6P	S Mn		50
							9A 9K 6P	S Ni		50
Faessler A	2	Z PHYSIK	138	71	549008	E	9G 9K 5B 00	S Sr		
							9G 9K 4L 5B 00	S Sr		50
Miyake S	3	J PHYS SOC JAP	22	670	679099	E	9K 0X 0S 9I 5Q	S Zn		50
Sugiura C	1	JAP J APPL PHYS	10	1120	719186	E	9A 9K 6P	S Zn		50
Domaschew E	2	RONTGENCHEMBIND		70	669177	E	9K 9S 9I 4L	Sb Al		50
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	Sb Al		50
Fischer D	2	ADV XRAY ANALYS	10	374	679041	E	9K 9S 9I 6P 4L	Sb Al		50
Domaschew E	2	RONTGENCHEMBIND		70	669177	E	9K 9S 9I 4L	Sb Ga		50
Drahokoup J	3	CZECH J PHYS	18B	1034	689222	E	9K 9L 0X	Sb Ge		00
Domaschew E	2	RONTGENCHEMBIND		70	669177	E	9K 9S 9I 4L	Sb In		50
Pearsall A	1	PHYS REV	48	133	359001	E	9S 9K	Se		
Parratt L	1	PHYS REV	49	502	369002	E	9S 9K	Se		
Parratt L	1	PHYS REV	50	1	369003	E	9S 9K	Se		
Nemnonov S	2	PHYS METALMETAL	22	66	669086	R	9K 9A	Se		
Finkelshtein L	2	PHYS METALMETAL	22	45	669105	E	9K 9G 9A 0D 5D	Se		100
Zhurakovs E	3	SOV PHYS DOKL	11	814	679117	E	9G 9K 4L 5B 9F	Se		
							9G 9K 4L 5B 9F	Se B		50
Cuthill J	4	NBS TECH NOTE	565	11	710591	E	9K 5D	Se B		67
Mc Alister A	4	MUNICH SYMP			739018	E	9K 5B	Se B		67 (1)
Zhurakovs E	3	SOV PHYS DOKL	11	814	679117	E	9G 9K 4L 5B 9F	Se C		50
							9G 9K 4L 5B 9F	Se N		50
Zhurakovs E	2	SOV PHYS DOKL	14	710	709183	E	9K 4L 3Q	Se O		50
Zhurakovs E	3	SOV PHYS DOKL	11	814	679117	E	9G 9K 4L 5B 9F	Se O		50
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q	Se O		60
Nemnonov S	2	PHYS METALMETAL	22	66	669086	E	9A 9K 6P 6F	Sc Ti		75
Shaw C	2	PHYS REV	50	1006	369006	E	9S 9K	Se		
Morlet J	1	BULLACADROYBELG	35	1059	499003	E	9K 9L 9S	Se		
Groven L	2	BULLACADROYBELG	37	630	519009	E	9K 9S 9I 5B 00	Se		
Fischer B	2	Z PHYSIK	204	122	679131	E	9K 9H 9I 4X	Se		
Nemoshkalenik V	3	PHYS STAT SOLID	30	703	689298	E	9K 6T	Se		100
Slivinsky V	2	PHYS LET	29A	463	699110	E	9I 9K 9G	Se		
Kern B	1	Z PHYSIK	159	178	609025	E	9K	Si		
Demekhin V	2	BULLACADSCIUSSR	28	733	649139	E	9K 9S 9I 4L	Si		100 (2)
Demjohin W	2	RONTGENCHEMBIND		58	669149	E	9K 9S 9I 4L 4A	Si		100
Lyapin V	1	SOVPHYS SOLIDST	8	2851	679109	E	9L 9K 5B	Si		

(1) 640 °C (2) 50 °C to 70 °C

a. K-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Demekhin V	2	BULLACADSCIUSSR	31	921	679162	E	9S 91 9K	Si		
Fischer D	2	NORELCO REPORTR	14	92	679387	R	9K 9S	Si		100
Dodd C	2	J APPL PHYS	39	5377	689319	E	9K 00	Si		100
Wiech G	1	SXS BANDSPECTRA		59	689325	E	9L 5D 5B	Si		
							9K 5D 5B	Si		
Kolobova K	2	PHYS METALMETAL	26	57	689368	E	9K 9S 91 9S 9G	Si		100
Graeffe G	5	PHYS LET	29A	464	699111	E	9K 9G 9S 91	Si		
Aita O	2	J PHYS SOC JAP	27	164	699204	E	9K 5B	Si		100
Nemnonov S	2	PHYS METALMETAL	28	68	699218	R	9K 9L 5D	Si		
Klima J	1	J PHYS	3C		709004	T	9K 9L 6T	Si		100
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9K	Si		100
Cauchois Y	1	COMPT REND	231	574	509000	E	9K 6P	SiAlMg		97
								SiAlMg		01
								SiAlMg		02
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	SiB		86
Kern B	1	Z PHYSIK	159	178	609025	E	9K	SiC		50
Demekhin V	2	BULLACADSCIUSSR	28	733	649139	E	9K 9S 91 4L	SiC		50 (1)
							9K	SiC		50
Fischer D	2	J CHEM PHYS	43	2075	659092	E	9K 4A	SiC		50
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	SiC		50
Demjoohin W	2	RONTGENCHEMBIND		58	669149	E	9K 9S 91 4L 4A	SiC		50
Demekhin V	2	BULLACADSCIUSSR	31	921	679162	E	9S 91 9K	SiC		25
Wiech G	1	SXS BANDSPECTRA		59	689325	E	9L 5D 5B	SiC	00	50
							9K 5D 5B	SiC	00	50
Chun H	1	PHYS LET	31A	118	709005	E	9K 9S 4L 00	SiC	50	100
Nemoshkalenik V	2	SOVPHYS SOLIDST	12	46	709196	R	9L 9K 5D	SiC		
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	SiCa		33
							9K 9L	SiCe		33
Menshikov A	2	BULLACADSCIUSSR	27	402	639116	E	9K 9S 3Q	SiCr	33	75
Nemnonov S	2	PHYS STAT SOLID	24K	43	679383	E	9K 9A	SiCr		75
Kolobova K	2	PHYS METALMETAL	26	57	689368	R	9K 9S	SiCr	33	50
Nemnonov S	3	PHYS STAT SOLID	39	39	709195	R	9A 9K 5B	SiCr		75
Das Gupta K	1	TECH REPORT AD	412	791	639088	E	9K 5B	SiFe	0	75
Kolobova K	2	PHYS METALMETAL	26	57	689368	E	9K 9S 91 9S 9G	SiFe	28	83
							9K 9S 91 9S 9G	SiFe	30	50
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	SiLa		33
							9K 9L	SiMo		33
Fischer D	2	J CHEM PHYS	43	2075	659092	E	9K 4A	SiN		57
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	SiN		57
Zhukova I	4	SOVPHYS SOLIDST	10	1097	689258	E	9L 6G 5B 5D 4L	SiN		57
							9K 6G 5B 5D 4L	SiN		57
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9K	SiN		57
Kern B	1	Z PHYSIK	159	178	609025	E	9K	SiO	00	67
Das Gupta K	1	TECH REPORT AD	412	791	639088	E	9K 5B	SiO		67
Demekhin V	2	BULLACADSCIUSSR	28	733	649139	E	9K 9S 91 4L	SiO		67 (1)
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 00	SiO		67
Demjoohin W	2	RONTGENCHEMBIND		58	669149	E	9K 9S 91 4L 4A	SiO		67
Henke B	1	ADV XRAY ANALYS	9	430	669244	E	9K 01	SiO		67
Demekhin V	2	BULLACADSCIUSSR	31	921	679162	E	9S 91 9K	SiO	00	67
Ershov O	2	SOVPHYS SOLIDST	8	1699	679316	E	9L 6U	SiO		67
							9A 9K 9S	SiO		67
Fischer D	2	NORELCO REPORTR	14	92	679387	R	9K 9S	SiO		67
Utriainen J	5	Z NATURFORSCH	23A	1178	689210	E	91 9K 9S 9G	SiO	00	67
Wiech G	1	SXS BANDSPECTRA		59	689325	E	9L 5D 5B	SiO	00	67
							9K 5D 5B	SiO	00	67

(1) 50 °C to 70 °C

a. K-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Chun H	1	PHYS LET	31A	118	709005	E	9K 9S 4L 0O	SiO	67	100
Urch D	1	J PHYS	3C	1275	709220	T	9S 9K 9L 9I 4L	SiO		80
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9K	SiO		67
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	SiPr		33
Nemnonov S	5	PHYS METALMETAL	14	51	629124	R	9A 9K 3O 5W	SiT		
Zhurakovs E	2	SOV PHYS DOKL	4	1308	599067	R	9K 9S	SiTi	50	67
Kolobova K	2	PHYS METALMETAL	26	57	689368	E	9K 9S 9I 9S 9C	SiTi	50	67
Nemnonov S	2	PHYS STAT SOLID	24K	43	679383	E	9K	SiV		25
Nemnonov S	3	PHYS STAT SOLID	39	39	709195	E	9K 5B 7T	SiV		25
Kurmaev E	2	PHYS STAT SOLID	43K	49	719056	R	9K 9L 5D	SiV		25
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	SiW		67
Slivinsky V	2	PHYS LET	29A	463	699110	E	9I 9K 9C	Sm		
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q	SmO		60
Gokhale B	1	COMPT REND	233	937	519008	E	9K 4A	Sn		
Gokhale B	1	ANN PHYSIQUE	7	852	529013	E	9K 4A 6L 5B	Sn		
Gokhale B	1	PHYS REV LET	18	957	679057	E	9C 9K 4L 4N 5D	Sn		
Fischer B	2	Z PHYSIK	204	122	679137	E	9K 9H 9I 4X	Sn		
Green M	2	BRITJ APPL PHYS	1D	425	689206	E	9K 9I 9H	Sn		
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 4L 5B 9I 0O	SnO		50
Sumbaev O	5	SOV PHYS JETP	23	572	669093	E	9K 5N	SnO	00	67
Gokhale B	3	PHYS REV LET	18	957	679057	E	9C 9K 4L 4N 5D	SnO		50
Shaw C	2	PHYS REV	50	1006	369006	E	9C 9K 4L 4N 5D	SnO		67
Gokhale B	1	COMPT REND	233	937	519008	E	9S 9K	Sr		
Slivinsky V	2	PHYS LET	29A	463	699110	E	9I 9K 9C	Sr		
Gokhale B	1	ANN PHYSIQUE	7	852	529013	E	9K 4A 6L 5B	SrO		50
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q	SrO		50
Sumbaev O	6	SOV PHYS JETP	26	891	689189	E	9K 5N	SrO	00	50
Faessler A	2	Z PHYSIK	138	71	549008	E	9C 9K 5B 0O	SrS		
Vainshtein E	1	DOP ACADNAUKURR	70	21	509011	E	9C 9K 4L 5B 0O	SrS		50
Nemnonov S	5	PHYS METALMETAL	14	51	629124	R	9K 6T 9K	T		
Nemnonov S	5	TRANSMETSOCALME	245	1191	699104	R	9A 9K 3O 5W	T Al		
Nemnonov S	2	PHYS METALMETAL	27	51	699115	R	9K 9A 9L 5D 3Q	T B		67
Holliday J	1	ADV XRAY ANALYS	13	136	709349	R	9K 9A 9L 5D 3Q	T C		50
Nemnonov S	5	TRANSMETSOCALME	245	1191	699104	R	9K 9S 3Q	T C		
Nemnonov S	2	PHYS METALMETAL	27	51	699115	R	9K 9S 3Q	T N		50
Nemnonov S	5	TRANSMETSOCALME	245	1191	699104	R	9K 9A 9L 5D 3Q	T O		
Nemnonov S	2	PHYS METALMETAL	27	51	699115	R	9K 9S 3Q	T O		50
Nemnonov S	5	PHYS METALMETAL	14	51	629124	R	9A 9K 3O 5W	T Si		
Shuvaev A	1	BULLACADSCIUSSR	24	434	609087	T	4L 9E 9K 5N	T X		
Frantsevi A	3	SOV PHYS DOKL	15	970	719050	E	9K 3Q	TaB		67
Fischer D	2	J CHEM PHYS	43	2075	659092	E	9K 4A	TaC		50
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	TaC		50
Holliday J	1	J APPL PHYS	38	4720	679258	E	9K	TaC	00	50
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9K	TaC	00	50
Zhurakovs E	1	SOV PHYS DOKL	14	168	699149	E	9K 5B	TaC		50
Zhurakovs E	2	SOV PHYS DOKL	14	710	709183	E	9K 4L 3Q	TaV		50
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 4L 5B 9I 0O	TaO		60
Sumbaev O	6	SOV PHYS JETP	26	891	689189	E	9K 5N	TaO	00	86
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q	TbF		75
Slivinsky V	2	PHYS LET	29A	463	699110	E	9I 9K 9C	Te		
Ovrukskaya R	3	PHYS METALMETAL	15	123	639096	E	9K 4B	TcMn		50
Slivinsky V	2	PHYS LET	29A	463	699110	E	9I 9K 9C	Th		

a. K-Spectra—Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 00	ThO		67
Pearshall A	1	PHYS REV	48	133	359001	E	9S 9K	Ti		
Parratt L	1	PHYS REV	49	132	369001	E	9K 9S	Ti		
Parratt L	1	PHYS REV	49	502	369002	E	9S 9K	Ti		
Parratt L	1	PHYS REV	50	1	369003	E	9S 9K	Ti		
Vainshtein E	2	SOV PHYS DOKL	2	207	579038	E	9K	Ti		100
Vainshtein E	2	SOV PHYS DOKL	4	1050	599037	E	9K	Ti		100
Zhurakovs E	2	SOV PHYS DOKL	4	1308	599067	R	9K 9S	Ti		100
Vainshtein E	2	SOV PHYS DOKL	4	1050	609085	E	9G 9K	Ti		100
Nemoshkalenk V	1	SOV PHYS DOKL	8	78	639120	E	9K 9S 9I 4B	Ti		
Best P	1	BULL AM PHYSSOC	9	388	649103	R	9K 9S 4B	Ti		
Nemnonov S	2	PHYS METALMETAL	22	66	669086	R	9K 9A	Ti		
Nemnonov S	2	PHYS METALMETAL	22	36	669141	E	9A 9K 5D	Ti		100
Nemnonov S	2	FIZ METAL METAL	21	476	669228	E	9A 9K	Ti		
Batyrev V	2	BULLACADSCIUSSR	31	896	679158	E	9G 9F 9K 4L	Ti		100
Nemoshkalenk V	2	BULLACADSCIUSSR	31	1005	679178	E	9K 5D 5B	Ti		100
Nemnonov S	1	PHYS METALMETAL	24	66	679213	R	9K 9L	Ti		100
Nemoshkalenk V	2	SOV PHYS DOKL	12	735	689006	E	9F 9K 9L	Ti		
Nemnonov S	2	PHYS METALMETAL	26	43	689236	R	9K 9L	Ti		100
Ramqvist L	5	J PHYS CHEM SOL	30	1849	699087	E	9A 9K 3Q 3Q	Ti		100
Fischer D	1	TECH REPORT AD	713	100	709312	R	9A 9L	Ti		100
							9K 9A	Ti		100
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	TiAl	25	100
Fischer D	2	ADV XRAY ANALYS	10	374	679041	E	9K 9S 9I 6P 4L	TiAl		50
Kolobova K	2	PHYS METALMETAL	27	69	699351	E	9A 9K 9G 9I 9S	TiAl	0	75
Zhurakovs E	2	SOV PHYS DOKL	4	1308	599067	R	9K 9S	TiB	50	67
Fischer D	2	J APPL PHYS	37	768	669025	E	9K	TiB		67
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	TiB		67
Nemnonov S	2	PHYS METALMETAL	22	36	669141	E	9A 9K 3Q 9I 9S	TiB		67
Holliday J	1	RONTGENCHEMBIND		139	669203	E	9L 9I 4L	TiB		67
							9K 4L 4A	TiB		67
Ehlert R	2	ADV XRAY ANALYS	9	456	669241	E	9K	TiB		67
Holliday J	1	ADV XRAY ANALYS	9	365	669246	E	9I. 4L	TiB		67
							9K 4L	TiB		67
Nemnonov S	1	PHYS METALMETAL	24	66	679213	R	9K 9L	TiB		67
Holliday J	1	NORELCO REPORTR	14	84	679388	E	9L	TiB		67
							9K	TiB		67
Nemnonov S	4	PHYS METALMETAL	25	107	689194	E	9K 9S 5B	TiB		67
Ramqvist L	5	J PHYS CHEM SOL	30	1849	699087	E	9A 9K 3Q 3Q	TiB		67
Cuthill J	4	NBS TECH NOTE	565	11	710591	E	9K 5D	TiB		67
Frantsevi A	3	SOV PHYS DOKL	15	970	719050	E	9K 3Q	TiB		67
Mc Alister A	4	MUNICH SYMP			739018	E	9K 5B	TiB		67 (1)
Zhurakovs E	2	SOV PHYS DOKL	4	1308	599067	R	9K 9S	TiBe	50	67
Kolobova K	2	PHYS METALMETAL	27	69	699351	R	9A 9K	TiBi		50
Vainshtein E	2	SOV PHYS DOKL	2	207	579038	E	9K 9S	TiC		50
Vainshtein E	2	SOV PHYS DOKL	2	251	579039	E	9K	TiC	9	24
Vainshtein E	2	SOV PHYS DOKL	4	1050	599037	E	9K	TiC		50
Zhurakovs E	2	SOV PHYS DOKL	4	1308	599067	R	9K 9S	TiC		50
Vainshtein E	2	SOV PHYS DOKL	48	1050	609085	E	9G 9K 3Q	TiC		50
Vainshtein E	2	SOV PHYS DOKL	7	724	629131	E	9K 4L	TiC		
Vainshtein E	2	SOV PHYS DOKL	7	724	639028	E	9K 9S	TiC		50
Nemnonov S	2	PHYS METALMETAL	22	36	669141	E	9A 9K 3Q 9I 9S	TiC		50
							5D	TiC		
Holliday J	1	RONTGENCHEMBIND		139	669203	E	9L 9I 4L	TiC	45	50
							9K 4L 4A	TiC		50

(1) 710 °C

a. K-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Holliday J	1	ADV XRAY ANALYS	9	365	669246	E	9L 4L	TiC	45	49
Nemnonov S	1	PHYS METALMETAL	24	66	679213	R	9K 4L	TiC	45	49
Chirkov V	3	SOVPHYS SOLIDST	9	873	679243	E	9K 9L	TiC		50
Holliday J	1	J APPL PHYS	38	4720	679258	E	9K	TiC	0	50
Holliday J	1	NORELCO REPORTR	14	84	679388	E	9K	TiC		50
Zhurakovs E	1	SOV PHYS DOKL	13	578	689166	E	9K	TiC	35	56
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9L 5D	TiC		50
							9K	TiC		50
Ramqvist L	5	J PHYS CHEM SOL	30	1849	699087	E	9A 9K 30 3Q	TiC		
Zhurakovs E	1	SOV PHYS DOKL	14	168	699149	E	9K 5B	TiC		50
Fischer D	1	J APPL PHYS	41	3922	709186	R	9K 5B	TiC		50
							9L 9A 5B	TiC		50
Holliday J	1	ADV XRAY ANALYS	13	136	709349	R	9K 4L	TiC	0	66
Ramqvist L	5	J PHYS CHEM SOL	32	149	719000	R	9K 9L 3Q 5B	TiC		50
Vainshtein E	2	SOV PHYS DOKL	7	724	639028	E	9K 9S	TiC N	11	21
								TiC N	29	39
								TiC N		50
Kallne E	2	MUNICH SYMP			739011	E	9K	TiCo		
Nemnonov S	2	PHYS METALMETAL	23	66	679055	E	9A 9K 5D	TiFe	0	67
Kolobova K	2	PHYS METALMETAL	25	77	689369	E	9K 9C 9S	TiFe		50
Kallne E	2	MUNICH SYMP			739011	E	9K	TiFe		
Vainshtein E	2	SOV PHYS DOKL	2	207	579038	E	9K 9S	TiH		50
Vainshtein E	2	SOV PHYS DOKL	4	1050	599037	E	9K	TiH	01	003
Zhurakovs E	2	SOV PHYS DOKL	4	1308	599067	R	9K 9S	TiH		50
Vainshtein E	2	SOV PHYS DOKL	4	1050	609085	E	9C 9K 3Q 9S	TiH	33	58
Nemnonov S	2	PHYS METALMETAL	22	36	669141	E	9A 9K 3Q 9I 9S	TiH		64
Vainshtein E	2	SOV PHYS DOKL	2	207	579038	E	9K 9S	TiN		50
Vainshtein E	2	SOV PHYS DOKL	4	1050	599037	E	9K	TiN		50
Zhurakovs E	2	SOV PHYS DOKL	4	1308	599067	R	9K 9S	TiN		50
Vainshtein E	2	SOV PHYS DOKL	4	1050	609085	E	9C 9K 3Q	TiN		50
Vainshtein E	2	SOV PHYS DOKL	7	724	629131	E	9K 4L	TiN		
Vainshtein E	2	SOV PHYS DOKL	7	724	639028	E	9K 9S	TiN		50
Fischer D	2	J CHEM PHYS	43	2075	659092	E	9K 4A	TiN		50
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	TiN		50
Nemnonov S	2	PHYS METALMETAL	22	36	669141	E	9A 9K 3Q 9I 9S	TiN		50
							5D	TiN		
Holliday J	1	ADV XRAY ANALYS	9	365	669246	E	9K 4L	TiN		50
Nemnonov S	1	PHYS METALMETAL	24	66	679213	R	9K 9L	TiN		50
Brytov I	3	SOVPHYS SOLIDST	10	621	689041	E	9K 9I 9S 3Q	TiN		50
							9L 9I 9S 3Q	TiN		50
Nemnonov S	4	PHYS METALMETAL	25	107	689194	E	9K 9S 5B	TiN		50
Ramqvist L	5	J PHYS CHEM SOL	30	1849	699087	E	9A 9K 30 3Q	TiN		50
Zhurakovs E	2	SOV PHYS DOKL	14	710	709183	E	9K 4L 3Q	TiN		50
Fischer D	1	J APPL PHYS	41	3922	709186	R	9K 5B	TiN		50
							9L 9A 5B	TiN		50
Ramqvist L	5	J PHYS CHEM SOL	32	149	719000	R	9K 9L 3Q 5B	TiN		50
Kallne E	2	MUNICH SYMP			739011	E	9K	TiNi		
Vainshtein E	2	SOV PHYS DOKL	2	207	579038	E	9K 9S	TiO		67
Zhurakovs E	2	SOV PHYS DOKL	4	1308	599067	R	9K 9S	TiO		67
Vainshtein E	2	SOV PHYS DOKL	9	697	649143	E	9K 9I	TiO	46	54
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 00	TiO		67
Nemnonov S	2	PHYS METALMETAL	22	36	669141	E	9A 9K 3Q 9I 9S	TiO		50
Batyrev V	2	BULLACADSSUSSR	31	896	679158	E	9K 4L	TiO	50	67
Nemnonov S	1	PHYS METALMETAL	24	66	679213	R	9K 9L	TiO		50
Chirkov V	3	SOVPHYS SOLIDST	9	873	679243	E	9A 9K 4L	TiO	50	75 (I)

(1) Did not exceed 100 °C

a. K-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Holliday J	1	NORELCO REPORTR	14	84	679388	R	9L	TiO	20	66
							9K	TiO	20	66
Kolobova K	3	SOVPHYS SOLIDST	10	571	689040	R	9A 9K	TiO		
Brytov I	3	SOVPHYS SOLIDST	10	621	689041	E	9K 9I 9S 3Q	TiO	48	54
							9L 9I 9S 3Q	TiO	48	54
Nemnonov S	4	PHYS METALMETAL	25	107	689194	E	9K 9S 5B	TiO		50
Ramqvist L	5	J PHYS CHEM SOL	30	1849	699087	E	9A 9K 3O 3Q	TiO		50
Menshikov A	3	PHYS STAT SOLID	35	89	699182	E	9K 5X 5B	TiO		50
							9L	TiO		50
Krause H	3	TECH-REPORT AD	699	544	709013	E	9K 4L	TiO		45
							9K 4L	TiO		50
							9K 4L	TiO		60
							9K 4L	TiO		67
Krause H	3	JELECTROCHEMSOC	117	557	709042	E	9K 9E	TiO		
Fischer D	1	J APPL PHYS	41	3922	709186	R	9K 5B	TiO		50
							9L 9A 5B	TiO		50
Kolobova K	2	PHYS METALMETAL	27	69	699351	R	9A 9K	TiP		50
Nemnonov S	2	PHYS METALMETAL	22	66	669086	E	9A 9K 6P 6F	TiSe		75
Zhurakovs E	2	SOV PHYS DOKL	4	1308	599067	R	9K 9S	TiSi	50	67
Kolobova K	2	PHYS METALMETAL	26	57	689368	E	9K 9S 9I 9S 9C	TiSi	50	67
Nemnonov S	2	PHYS METALMETAL	22	66	669086	E	9A 9K 6P 6F	TiV	50	80
Vainshtein E	2	SOV PHYS DOKL	2	207	579038	E	9K 9S	TiW C		51
								TiW C		24
								TiW C		25
Shuvaev A	2	BULLACADSCIUSSR	28	838	649149	T	9K 4L 5W	TiX		
Rogosa G	2	PHYS REV	92	1434	539011	E	9K 9L	U		
Slivinsky V	2	PHYS LET	29A	463	699110	E	9I 9K 9G	U		
Pearsall A	1	PHYS REV	48	133	359001	E	9S 9K	V		
Parratt L	1	PHYS REV	49	502	369002	E	9S 9K	V		
Parratt L	1	PHYS REV	50	1	369003	E	9S 9K	V		
Zhurakovs E	2	SOV PHYS DOKL	4	1308	599067	R	9K 9S	V		100
Nemoshkalenik V	1	SOV PHYS DOKL	8	78	639120	E	9K 9S 9I 4B	V		
Best P	1	BULL AM PHYSSOC	9	388	649103	R	9K 9S 4B	V		
Nagornyi V	2	SOV PHYS DOKL	11	161	669001	E	9K 9I 9S	V		100
Nemnonov S	2	PHYS METALMETAL	22	66	669086	R	9K 9A	V		
Dzeganovskii V	2	SOV PHYS DOKL	11	349	669144	E	9K 9C 3Q 4L	V		
Nemnonov S	2	FIZ METAL METAL	21	211	669151	R	9K 5D 9A	V		100
Nemoshkalenik V	2	RONTGENCHEMBIND		230	669213	E	9K 9I	V		100
Nemoshkalenik V	2	BULLACADSCIUSSR	31	1005	679178	E	9K 5D 5B	V		100
Nemoshkalenik V	2	SOV PHYS DOKL	12	735	689006	E	9F 9K 9L	V		
Nemnonov S	2	PHYS METALMETAL	26	43	689236	R	9K 9K	V		100
Nemnonov S	2	PHYS METALMETAL	25	179	689366	R	9A 9K	V		100
Nemoshkalenik V	2	UKRAIN PHYS J	13	847	699108	E	9K 9C	V		100
Ramqvist L	5	J PHYS CHEM SOL	32	149	719000	E	9K	V		100
Nemnonov S	4	PHYS STAT SOLID	46	77	719169	E	9K	V		100
Dzeganovskii V	2	SOV PHYS DOKL	11	349	669144	E	9K 9C 3Q 4L	VB	50	67
Holliday J	1	NORELCO REPORTR	14	84	679388	R	9K	VB		67
Cuthill J	4	NBS TECH NOTE	565	11	710591	E	9K 5D	VB		67
Frantsevi A	3	SOV PHYS DOKL	15	970	719050	E	9K 3Q	VB		67
Mc Alister A	4	MUNICH SYMP			739018	E	9K 5B	VB		67 (1)
Dzeganovskii V	2	SOV PHYS DOKL	11	349	669144	E	9K 9C 3Q 4L	VC	16	19
Kurmaev E	4	BULLACADSCIUSSR	31	1011	679179	E	9A 9K 5B 3Q	VC	41	47
Holliday J	1	J APPL PHYS	38	4720	679258	E	9K	VC	00	50
Nemnonov S	4	PHYS METALMETAL	25	107	689194	E	9K 9S 5B	VC	40	46
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9K	VC	00	50

(1) 760 °C

a. K-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Zhurakovs E	1	SOV PHYS DOKL	14	168	699149	E	9K 5B	V C		50
Zhurakovs E	3	INORGANIC MATLS	6	183	709306	E	9L 4A 1H 1B 1T	V C	27	48
							9K 4L	V C	27	48
							9K 4L	V C	29	47
Holliday J	1	ADV XRAY ANALYS	13	136	709349	R	9K 4L	V C	0	50
Ramqvist L	5	J PHYS CHEM SOL.	32	149	719000	E	9K 4L 9V 5V 3Q	V C	42	47
							9L 4L 9V 5V 3Q	V C	42	47
								V C	42	47
Zhurakovs E	8	SOV PHYS DOKL	15	877	719021	E	9L 4A 1H 4L	V C	28	47
							9K 4L	V C	28	47
							9K 9A	V C	28	47
Kurmaev E	4	BULLACADSCIUSSR	31	1011	679179	E	9A 9K 5B 3Q	V C O	23	33
								V C O	24	26
								V C O	41	53
Nemoshkalenk V	2	UKRAIN PHYS J	13	847	699108	E	9K 9G 3Q	V Co		43
Nemnonov S	4	PHYS STAT SOLID	46	77	719169	E	9K	V Co		25
Nemnonov S	6	BAND STRU SPECT		237	739006	E	9K	V Co		25
Nemnonov S	2	PHYS METALMETAL	22	66	669086	E	9A 9K 6P 6F	V Cr	40	93
Nagornyi V	2	SOV PHYS DOKL	11	161	669001	E	9K 9I 9S	V Fe	20	50
Nemoshkalenk V	2	RONTGENCHEMBIND		230	669213	E	9K 9I 4L	V Fe	22	57
							9K 9I 4L	V Fe	52	99
Kolobova K	2	PHYS METALMETAL	25	77	689369	E	9K 9G 9S	V Fe		50
Nemnonov S	6	BAND STRU SPECT		237	739006	E	9K	V Fe		30
Nemnonov S	3	PHYS STAT SOLID	39	39	709195	E	9K 5B 7T	V Ga		25
							9K 5B 7T	V Ge		25
Nemnonov S	4	PHYS STAT SOLID	46	77	719169	E	9K	V Ir		25
Nemnonov S	6	BAND STRU SPECT		237	739006	E	9K	V Ir		25
Nemnonov S	2	PHYS METALMETAL	25	179	689366	E	9A 9K 9G	V Mn		50
Nemoshkalenk V	2	UKRAIN PHYS J	13	847	699108	E	9K 9C 3Q	V Mn		81
Dzeganovskii V	2	SOV PHYS DOKL	11	349	669144	E	9K 9C 3Q 4L	V N		50
Nemnonov S	4	PHYS METALMETAL	25	107	689194	E	9K 9S 5B	V N		50
Brytov I	3	PHYS METALMETAL	26	178	689363	E	9K 9S 5B	V N		50
Zhurakovs E	2	SOV PHYS DOKL	14	710	709183	E	9K 4L 3Q	V N		50
Nemnonov S	4	PHYS STAT SOLID	46	77	719169	E	9K	V Ni		90
Nemnonov S	6	BAND STRU SPECT		237	739006	E	9K	V Ni		90
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 4L 5B 9I 0O	V O	29	
							9K 0O	V O		60
Dzeganovskii V	2	SOV PHYS DOKL	11	349	669144	E	9K 9C 3Q 4L	V O	60	71
Kurmaev E	4	BULLACADSCIUSSR	31	1011	679179	E	9A 9K 5B 3Q	V O	46	55
Nemnonov S	4	PHYS METALMETAL	25	107	689194	E	9K 9S 5B	V O	45	55
Fischer D	1	J APPL PHYS	40	4151	699173	E	9K 9R	V O	60	71
								V O	60	67
Menshikov A	3	PHYS STAT SOLID	35	89	699182	E	9K 5X 5B	V O		50
							9L	V O		50
Nemnonov S	6	BAND STRU SPECT		237	739006	E	9K	V Os		25
Nemnonov S	4	PHYS STAT SOLID	46	77	719169	E	9K	V Pd		25
Nemnonov S	6	BAND STRU SPECT		237	739006	E	9K	V Pd		25
Nemnonov S	4	PHYS STAT SOLID	46	77	719169	E	9K	V Pt		25
Nemnonov S	6	BAND STRU SPECT		237	739006	E	9K	V Pt		25
Nemnonov S	4	PHYS STAT SOLID	46	77	719169	E	9K	V Rh		25
Nemnonov S	6	BAND STRU SPECT		237	739006	E	9K	V Rh		25
							9K	V Ru		25
Nemnonov S	2	PHYS STAT SOLID	24K	43	679383	E	9K	V Si		25
Nemnonov S	3	PHYS STAT SOLID	39	39	709195	E	9K 5B 7T	V Si		25
Kurmaev E	2	PHYS STAT SOLID	43K	49	719056	R	9K 9L 5D	V Si		25

a. K-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Nemnonov S	2	PHYS METALMETAL	22	66	669086	E	9A 9K 6P 6F	V Ti	50	80
Kliever W	1	PHYS REV	56	387	399003	E	9K	W		
Barrere G	1	COMPT REND	233	376	519001	E	9K 9L	W		
Hanson H	2	PHYS REV	105	1483	579048	E	9E 9K	W		
Slivinsky V	2	PHYS LET	29A	463	699110	E	9I 9K 9G	W		
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	W B		71
Vainshtein E	2	SOV PHYS DOKL	2	207	579038	E	9K 9S	W C Ti		51
								W C Ti		24
								W C Ti		25
Sumbaev O	5	SOV PHYS JETP	23	572	669093	E	9K 5N	W O	00	75
Sumbaev O	6	SOV PHYS JETP	26	891	689189	E	9K 5N	W O	00	75
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	W Si		67
Sato M	1	SCI REP TOHOKUU	30	267	419000	T	9A 9K 9S	X		
Curie D	1	J PHYS RADIUM	13	505	529007	E	9K 4A 4C	X		
Kakuschadze T	1	ANN PHYSIK	3	352	599019	T	9K 9S 5D	X		
Blokhin M	2	BULLACADSCIUSSR	24	410	609057	T	9K 9L 9M 9T	X		
Kakushadze T	1	ANN PHYSIK	8	353	619044	T	9S 9K 9L 9M 5B	X		
Mizuno Y	2	J PHYS SOC JAP	25	627	689233	T	9A 9K 9L	X		
Sumbaev O	1	PHYS LET	30A	129	699165	E	9K 4L	X		
Stankevich Y	1	SOV PHYS DOKL	15	356	709212	T	9E 9K	X		
Holliday J	1	TECH METALS RES	3	325	709345	R	9K 9L 9M 0I	X		
Fabian D	1	CRREV SOLST SCI	2	255	719070	R	9K 9L 9M	X		
Fischer D	2	J APPL PHYS	38	2404	679122	E	9K 9S 9I 4L 5B	X Al		
Gigl P	3	JELECTROCHEMSOC	117	15	709041	E	9K 4L 00	X Al		
Maruno S	2	JAP J APPL PHYS	9	1428	709234	E	9K 4A 00	X Al		
Ehlert R	2	ADV XRAY ANALYS	9	456	669241	E	9K 00	X Be		
Menshikov A	2	BULLACADSCIUSSR	27	402	639116	E	9K 9S 3Q 00	X Cr		
Shuvaev A	2	BULLACADSCIUSSR	27	331	639117	E	9E 9K 9S 4L 4A	X Cr		
Menshikov A	2	PHYS METALMETAL	19	52	659088	E	9A 9K 9G 00	X Cr		
Kirichok P	2	UKRAIN PHYS J	13	66	689063	E	9K 9S 00 4L	X Fe		
Vainshtein E	3	SOVPHYS SOLIDST	7	1707	669227	E	9K 9G 9S 4L 00	X Mg X		
Kirichok P	2	UKRAIN PHYS J	13	66	689063	E	9K 9S 00 4L	X Mn		
Fischer D	1	APPL SPECTRY	25	263	719069	E	9K 00	X O X		
Wiech G	1	X RAY CONF KIEV	2	25	699287	R	9K	X P		
Shuvaev A	1	BULLACADSCIUSSR	24	434	609087	T	4L 9E 9K 5N	X T		
Shuvaev A	2	BULLACADSCIUSSR	28	838	649149	T	9K 4L 5W	X Ti		
Shuvaev A	1	BULLACADSCIUSSR	25	996	619101	E	9K 9I 00	X X		
Thompson B	2	DVP APPL SPCTRY	4	23	649156	R	9K 9L 9M	X X		
							9K 9L 9M	X X		
Lyapin V	2	SOVPHYS SOLIDST	10	1879	699019	T	9K 9L 4B 5B	X X		
							9K 9L 4B 5B	X X		
Nemnonov S	2	PHYS METALMETAL	27	51	699115	R	9K 9S 3Q 00	X X		
							9K 9S 3Q 00	X X		
Stott M	1	J PHYS	2C	1474	699140	T	9K 5R 5N	X X		
							9K 5R 5N	X X		
Vainshtein E	3	SOVPHYS SOLIDST	7	1707	669227	E	9K 9G 9S 4L 00	X X Mg		
Fischer D	1	APPL SPECTRY	25	263	719069	E	9K 00	X X O		
Shaw C	2	PHYS REV	50	1006	369006	E	9S 9K	Y		
Gokhale B	1	COMPT REND	233	937	519008	E	9K 4A	Y		
Slivinsky V	2	PHYS LET	29A	463	699110	E	9I 9K 9G	Y		
Gokhale B	1	ANN PHYSIQUE	7	852	529013	E	9K 4A 6L 5B	Y O		60
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q	Y O		60
Sumbaev O	6	SOV PHYS JETP	26	891	689189	E	9K 5N	Y O	00	60
Slivinsky V	2	PHYS LET	29A	463	699110	E	9I 9K 9G	Yb		
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q	Yb O		60
Parratt L	1	PHYS REV	50	1	369003	E	9S 9K	Zn		

a. K-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Shaw C	2	PHYS REV	50	1006	369006	E	9S 9K	Zn		
Bearden J	2	PHYS REV	58	387	409001	E	9A 9K 5B 5D 4L	Zn		
Sato M	1	SCI REP TOHOKUU	30	267	419000	T	9A 9K 9L 9M 9S	Zn		
Edamoto I	1	SCI REP TOHOKUU	2A	561	509005	E	9K 9F	Zn		
Groven L	2	BULLACADROYBELG	37	630	519009	E	9K 9S 9I 5B 00	Zn		
Sawada M	4	J PHYS SOC JAP	10	647	559022	E	9K 9S	Zn		
Shuvaev A	1	BULLACADSCIUSSR	24	434	609087	T	4L 9E 9K 5N	Zn		100
Nemoshkalen V	3	PHYS STAT SOLID	30	703	689298	E	9K 6T	Zn		100
Nemoshkalen V	2	PHYS STAT SOLID	25K	83	689372	E	9K 9Q 9F	Zn		
Slivinsky V	2	PHYS LET	29A	463	699110	E	9I 9K 9G	Zn		
Bearden J	2	PHYS REV	58	387	409001	E	9A 9K 5B 5D 4L	ZnCu	21	95
Sato M	1	SCI REP TOHOKUU	30	267	419000	T	9A 9K 9S	ZnCu		
Friedel J	1	PHIL MAG	43	153	520032	R	9A 9K 5N 6P	ZnCu		
Neddermey H	1	MUNICH SYMP			739015	E	9K	ZnMg	33	90
							9L	ZnMg	33	90
Bearden J	2	PHYS REV	58	396	409000	E	9A 9K 9S	ZnNi	70	83
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 00	ZnO		50
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9K 3Q	ZnO		50
Miyake S	3	J PHYS SOC JAP	22	670	679099	E	9K 0X 0S 9I 5Q	ZnS		50
Sugiura C	1	JAP J APPL PHYS	10	1120	719186	E	9A 9K 6P	ZnS		50
Shaw C	2	PHYS REV	50	1006	369006	E	9S 9K	Zr		
Gokhale B	1	COMPT REND	233	937	519008	E	9K 4A	Zr		
Slivinsky V	2	PHYS LET	29A	463	699110	E	9I 9K 9G	Zr		
Fischer D	2	TECH REPORT AD	807	479	669226	E	9K 9S	ZrAl	25	100
Fischer D	2	ADV XRAY ANALYS	10	374	679041	E	9K 9S 9I 6P 4L	ZrAl	25	75
Fischer D	2	ADV XRAY ANALYS	9	329	669030	E	9K 6P	ZrB		67
Holliday J	1	RONTGENCHEMBIND		139	669203	E	9K 4L 4A	ZrB		67
Holliday J	1	ADV XRAY ANALYS	9	365	669246	E	9K 4L	ZrB		67
Hayasi T	2	SCI REP TOHOKUU	50	228	679151	E	9K 0I	ZrB		67
							9M 0I	ZrB		67
Holliday J	1	NORELCO REPORTR	14	84	679388	R	9K	ZrB		67
Hayasi Y	1	SCI REP TOHOKUU	51	43	689367	E	9K 3Q 9S 6P	ZrB		33
							6P 9M	ZrB		33
Frantsevi A	3	SOV PHYS DOKL	15	970	719050	E	9K 3Q	ZrB		67
Holliday J	1	RONTGENCHEMBIND		139	669203	E	9K 4L 4A	ZrC		50
Holliday J	1	ADV XRAY ANALYS	9	365	669246	E	9K 4L	ZrC		50
							9M	ZrC		50
Holliday J	1	NORELCO REPORTR	14	84	679388	E	9K	ZrC		50
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9K	ZrC		50
Zhurakovs E	1	SOV PHYS DOKL	14	168	699149	E	9K 5B	ZrC		50
Holliday J	1	RONTGENCHEMBIND		139	669203	E	9K 4L 4A	ZrN		50
Holliday J	1	ADV XRAY ANALYS	9	365	669246	E	9K 4L	ZrN		50
Zhurakovs E	2	SOV PHYS DOKL	14	710	709183	E	9K 4L 3Q	ZrN		50
Gokhale B	1	ANN PHYSIQUE	7	852	529013	E	9K 4A 6L 5B	ZrO		67
Fischer D	1	J CHEM PHYS	42	3814	659064	E	9K 4L 5B 9I 00	ZrO		33
							9K 00	ZrO		67
Sumbaev O	6	SOV PHYS JETP	26	891	689189	E	9K 5N	ZrO	00	67

b. L-Spectra

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Norris P	3	BAND STRU SPECT		229	739009	E	9L	MgT		
Hirsh F	2	PHYS REV	44	955	339000	E	9G 9S 9L	Ag		
Parratt L	1	PHYS REV	50	598	369004	E	9S 9L 9M 9I 4A	Ag		
Burbank C	1	PHYS REV	56	142	399001	E	9S 9L	Ag		
Richtmyer R	1	PHYS REV	56	146	399005	T	9L 9S	Ag		
Randall C	1	PHYS REV	57	786	409004	E	9S 9L	Ag		
Cauchois Y	1	COMPT REND	235	613	529005	E	9L	Ag		
Noreland E	1	ARKIV FYSIK	26	341	649107	E	9E 9L 5B 5D 0D	Ag		
Noreland E	2	ARKIV FYSIK	26	161	649110	E	9L 9R 9S 0D 5B	Ag		
Nemoshkalenk V	2	RONTGENCHEMBIND		224	669212	E	9L 9I	Ag		100
Nemoshkalenk V	2	SOVPHYS SOLIDST	9	268	679111	E	9L 9G 9I 5D	Ag		
Nemoshkalenk V	2	PHYS LET	30A	44	699153	E	9L 4A 5B 5D	Ag		
Marshall C	5	PHYS LET	28A	579	699002	E	9L 5B	AgAl	0	20
Fabian D	5	X RAY CONF KIEV	1	26	699280	E	9L 8U	AgAl	0	10
Curry C	2	PHIL MAG	21	659	709016	E	9L 5B 5D 6T 5N	AgAl		63
Fabian D	3	NBS IMR SYMP	3		709114	E	9L	AgAl	0	20
Kapoor Q	3	BAND STRU SPECT		215	739008	E	9L	AgAl		
Curry C	2	PHIL MAG	21	659	709016	E	9L 5B 5D 6T 5N	AgMg		25
Norris P	3	BAND STRU SPECT		229	739009	E	9L	AgMg		
Hedman J	9	PHYS SCRIPTA	4	195	719188	E	9L	AgPd		12
							9L	AgPd		71
							9L	AgPd		88
Jones H	3	PHYS REV	45	379	349000	T	9L	Al		
Skinner H	1	PHILTRANSROYSOC	239A	95	409005	E	9L	Al		
Cady W	2	PHYS REV	59	381	419001	E	9L	Al		
Das Gupta K	1	PHYS REV	80	281	509003	E	9L	Al		
Shinoda G	3	J PHYS SOC JAP	7	644	529023	E	9L	Al		
Shinoda C	3	TECHREPT OSAKAU	4	1	549018	E	9L 0I	Al		
Das Gupta K	3	J SCI INDUS RES	14B	129	559005	E	9K 9L	Al		
Sen A	1	INDIAN J PHYS	30	415	569025	E	9L 9K 5B	Al		
Shinoda G	3	J PHYS SOC JAP	11	657	569027	E	9L	Al		
Hayashi T	2	SCI REP TOHOKUU	44	126	609077	E	9A 9L	Al		100
Sagawa T	1	SCI REP TOHOKUU	44	115	609078	E	9L	Al		
Crisp R	1	THESIS U W AUST		1	619046	E	9L 0I	Al		100
Lukirskii A	1	BULLACADSCIUSSR	25	926	619055	E	9E 9L	Al		100
Rooke G	1	PHYS LET	3	234	639085	E	9S 9L	Al		100
Catterall J	2	PHIL MAG	8	897	639087	E	9L 0L	Al		(1)
Brouers F	1	PHYS LET	11	297	649112	T	9L 6O 9S 9I	Al		
Appleton A	2	PHIL MAG	12	245	659066	E	9L	Al		100
Wiech G	1	Z PHYSIK	193	490	669167	E	9L 0S 4L	Al		
Wiech G	1	RONTGENCHEMBIND		343	669225	E	9L	Al		100
Dimond R	1	PHIL MAG	15	631	679063	E	9R 9A 9L	Al		
Fomichev V	1	SOVPHYS SOLIDST	8	2312	679102	E	9A 9L 6O 5D 9R	Al		
Brouers F	1	PHYS STAT SOLID	22	213	679124	T	9L 6O 9S 9I	Al		
Hayasi T	2	SCI REP TOHOKUU	50	228	679151	E	9L 0I	Al		
Appleton A	2	PHIL MAG	16	1031	679278	E	9L	Al		
Ellwood E	3	METALS MATLS	1	333	679379	R	9L	Al		100
Rooke G	1	J PHYS	1C	767	689153	T	9L 9K 5D 9T	Al		
Rooke G	1	J PHYS	1C	776	689154	E	9L 9S 5P	Al		
Rooke G	1	SXS BANDSPECTRA		3	689322	E	9L 9S 9T 5B 6T	Al		
Sagawa T	1	SXS BANDSPECTRA		29	689323	E	9A 5B 5D 9L	Al		
Wiech G	1	SXS BANDSPECTRA		59	689325	E	9L 5D 5B	Al		
							9K 5D 5B	Al		
Cuthill J	4	SXS BANDSPECTRA		151	689331	R	9L 9S	Al		100

(1) 800 °C to 850 °C

b. L-Spectra—Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Nemoshkalen V	4	UKRAIN PHYS J	13	837	699109	R	9K 9L	Al		100
Nemnonov S	2	PHYS METALMETAL	28	68	699218	R	9K 5D	Al		
							9L 5D	Al		
Hoffmann L	3	Z PHYSIK	229	131	699264	E	9L 9I 9R 0S 7D	Al		
Hayasi T	2	X RAY CONF KIEV	1	307	699286	E	9E 9L 6P	Al		
Watson L	4	X RAY CONF KIEV	2	56	699289	R	9L 0D	Al		
Neddermey H	2	PHYS LET	31A	17	709000	E	9L 9S 9R	Al		100
Kobayasi T	2	J PHYS SOC JAP	28	457	709055	T	6T 9E 9L 9T 9R	Al		
							4A	Al		
Nemnonov S	3	PHYS METALMETAL	30	211	709351	E	9K 9L	Al		100
							9K 9L	Al		100
Nemnonov S	4	PHYS STAT SOLID	43	319	719055	E	9L	Al		100
Smrcka L	1	CZECH J PHYS	21B	683	719187	T	9K 9L 5D	Al		100
Sagawa T	1	J PHYSIQUE	32S	186	719204	E	9L 9S	Al		100
Watson L	3	J PHYSIQUE	32S	325	719208	E	9L	Al		100
Watson L	3	MUNICH SYMP			739014	E	9L	Al		
Marshall C	5	PHYS LET	28A	579	699002	E	9L 5B	AlAg	0	20
Fabian D	5	X RAY CONF KIEV	1	26	699280	E	9L 8U	AlAg	0	10
Curry C	2	PHIL MAG	21	659	709016	E	9L 5B 5D 6T 5N	AlAg		63
Fabian D	3	NBS IMR SYMP	3		709114	E	9L	AlAg	0	20
Kapoor Q	3	BAND STRU SPECT		215	739008	E	9L	AlAg		
Curry C	2	PHIL MAG	21	659	709016	E	9L 5B 5D 6T 5N	AlAu	50	67
Williams M	4	NBS IMR SYMP	3		709081	E	9L 6T	AlAu		67 (1)
Kapoor Q	3	BAND STRU SPECT		215	739008	E	9L	AlAu		
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	AlCa		67
							9K 9L	AlCe		67
Curry C	2	PHIL MAG	21	659	709016	E	9L 5B 5D 6T 5N	AlCo		71
Kapoor Q	3	BAND STRU SPECT		215	739008	E	9L	AlCo		
Watson L	3	MUNICH SYMP			739014	E	9L	AlCo		50
Curry C	2	PHIL MAG	21	659	709016	E	9L 5B 5D 6T 5N	AlCr		70
Watson L	3	MUNICH SYMP			739014	E	9L	AlCr		36
Farineau J	1	J PHYS RADIUM	10	327	399007	E	9L	AlCu	00	96
Shinoda G	1	X SEN	8	55	559023	E	9L 9M	AlCu		66
Lucasson A	1	COMPT REND	245	1794	579024	E	9L 9S 4L 5B	AlCu	2	96
Lucasson A	1	ANN PHYSIQUE	5	509	609031	E	9A 9L	AlCu	00	98
Appleton A	1	CONTEMP PHYS	6	50	649132	R	5D 9L	AlCu	19	100
Fischer D	2	TECH REPORT AD	807	479	669226	E	9L	AlCu	00	80
Baun W	2	J APPL PHYS	38	2092	679108	E	9S 9I 9L 5B 4L	AlCu	0	80
Curry C	1	SXS BANDSPECTRA		173	689333	E	9L 5D	AlCu		67
Curry C	2	PHIL MAG	21	659	709016	E	9L 5B 5D 6T 5N	AlCu	50	67
Fabian D	3	NBS IMR SYMP	3		709114	E	9L	AlCu		80
Nemnonov S	4	PHYS STAT SOLID	43	319	719055	E	9L	AlCu	33	67
Watson L	1	BAND STRU SPECT		125	739003	R	9L 9S 5D	AlCu		50
Kapoor Q	3	BAND STRU SPECT		215	739008	E	9L	AlCu		
Watson L	3	MUNICH SYMP			739014	E	9L	AlCu	20	90
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	AlDy		67
							9K 9L	AlEr		67
Das Gupta K	1	PHYS REV	80	281	509003	E	9L	AlFe		25
Das Gupta K	1	TECH REPORT AD	412	791	639088	E	9L 5B	AlFe	0	100
Fischer D	2	TECH REPORT AD	807	479	669226	E	9L	AlFe	00	95
Appleton A	2	PHIL MAG	16	1031	679278	E	9M	AlFe	18	28
							9L	AlFe	18	28
Curry C	1	SXS BANDSPECTRA		173	689333	E	9L 5D	AlFe	18	28
Nemoshkalen V	2	UKRAIN PHYS J	13	1022	699240	R	8C 9E 9L	AlFe	25	72
Curry C	2	PHIL MAG	21	659	709016	E	9L 5B 5D 6T 5N	AlFe		71

(I) 500 °C

b. L-Spectra-Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Kapoor Q	3	BAND STRU SPECT		215	739008	E	9L	AlFe		
Watson L	3	MUNICH SYMP			739014	E	9L	AlFe	25	75
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	AlCd		67
							9K 9L	AlLa		67
Crisp R	1	THESIS U W AUST		1	619046	E	9L 0I	AlLi		
							9K 0I	AlLi		
Das Gupta K	2	PHIL MAG	46	77	559006	E	9L 5B	AlMg	5	100
Gale B	2	PHIL MAG	1	759	569016	E	9L	AlMg		
Appleton A	1	CONTEMP PHYS	6	50	649132	R	5D 9L	AlMg	04	100
							5D 9L	AlMg	00	88
Appleton A	2	PHIL MAG	12	245	659066	E	9L	AlMg	42	58
Dimond R	1	PHIL MAG	15	631	679063	E	9R 9A 9L	AlMg	43	60
Curry C	1	SXS BANDSPECTRA	173	689333	R	9L 5D	AlMg	41	100	
Jacobs R	1	PHYS LET	30A	523	699213	T	9L 5D 6T	AlMg		50
Neddermey H	1	THESIS MUNCHEN			699355	E	9L 0I	AlMg	0	100
Neddermey H	1	NBS IMR SYMP	3	709115	E	9L	AlMg	0	100	
Neddermey H	1	PHYS LET	38A	329	729045	E	9K 9L	AlMg	40	60
Neddermey H	1	BAND STRU SPECT		153	739002	E	9K 9L	AlMg	05	60
Curry C	1	SXS BANDSPECTRA	173	689333	E	9L 5D	AlMn		75	
Curry C	2	PHIL MAG	21	659	709016	E	9L 5B 5D 6T 5N	AlMn		75
Watson L	3	MUNICH SYMP			739014	E	9L	AlMn		86
Fomichev V	1	SOVPHYS SOLIDST	10	597	689224	E	9L 6C 4L 5D 6T	AlN		50
							9K 6C 4L 5D 6T	AlN		50
Hayasi T	2	X RAY CONF KIEV	1	307	699286	E	9E 9L 3Q	AlN		50
Wiech G	2	J PHYSIQUE	32S	201	719206	E	9R 9L	AlN		50
Watson L	3	J PHYSIQUE	32S	325	719208	E	9L	AlNb	25	75
Watson L	1	BAND STRU SPECT		125	739003	R	9L 9S 5D	AlNb	25	75
Kapoor Q	3	BAND STRU SPECT		215	739008	E	9L	AlNb		
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	AlNd		67
Farineau J	1	J PHYS RADIUM	10	327	399007	E	9K	AlNi	18	100
							9L	AlNi	00	89
Fischer D	2	PHYS REV	145	555	669148	E	9L 9S 9I 4L 5B	AlNi	0	90
Fischer D	2	TECH REPORT AD	807	479	669226	E	9L	AlNi	00	90
Cuthill J	3	J APPL PHYS	39	2204	689098	E	9L	AlNi	0	100
							9M	AlNi	0	100
Cuthill J	4	SXS BANDSPECTRA		151	689331	R	9M 5D	AlNi	0	100
							9L 5D	AlNi	0	100
Curry C	2	PHIL MAG	21	659	709016	E	9L 5B 5D 6T 5N	AlNi		50
Watson L	3	MUNICH SYMP			739014	E	9L	AlNi		48
Das Gupta K	1	PHYS REV	80	281	509003	E	9L	AlO		
Wiech G	1	Z PHYSIK	193	490	669167	E	9L 0S 4L	AlO		40
Fomichev V	1	SOVPHYS SOLIDST	8	2312	679102	E	9A 9K 4L 5D 9R	AlO		40
Rumsh M	4	VESTNIKLEN UNIV	16	49	689371	E	9K 9A	AlO		40
							9L 9A	AlO		40
Nemoshkalen V	4	UKRAIN PHYS J	13	837	699109	R	9K 9L	AlO		40
Chun H	2	Z NATURFORSCH	24A	930	699133	R	9K 9L	AlO		40
Hayasi T	2	X RAY CONF KIEV	1	307	699286	E	9E 9L 3Q	AlO		40
Wiech G	1	Z PHYSIK	216	472	689248	E	9L 9K 5B	AlP		50
Nemnonov S	4	PHYS STAT SOLID	43	319	719055	E	9L	AlPd		75
Watson L	3	J PHYSIQUE	32S	325	719208	E	9L	AlPd	50	75
Watson L	1	BAND STRU SPECT		125	739003	R	9L 9S 5D	AlPd		50
Kapoor Q	3	BAND STRU SPECT		215	739008	E	9L	AlPd		
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	AlPr		67
Wiech G	2	J PHYSIQUE	32S	201	719206	E	9R 9L	AlSb		50
Das Gupta K	2	PHIL MAG	46	77	559006	E	9L 5B	AlSi	5	12

b. L-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Curry C	2	PHIL MAG	21	659	709016	E	9L 5B 5D 6T 5N	<i>AlTi</i>		75
Kapoor Q	3	BAND STRU SPECT		215	739008	E	9L	<i>AlV</i>		
Watson L	3	MUNICH SYMP			739014	E	9L	<i>AlV</i>		
Fabian D	5	X RAY CONF KIEV	1	26	699280	E	9L 8U	<i>AlZn</i>	10	75
Fabian D	3	NBS IMR SYMP	3		709114	E	9L	<i>AlZn</i>	75	100
Watson L	3	MUNICH SYMP			739014	E	9L	<i>AlZn</i>	45	90
Curry C	2	PHIL MAG	21	659	709016	E	9L 5B 5D 6T 5N	<i>AlZr</i>		67
Merrill J	2	ANN PHYS	14	166	619057	E	9L 4A 9A	<i>Am</i>		
Parratt L	1	PHYS REV	50	598	369004	E	9S 9L 9M 9I 4A	<i>Au</i>		
Hirsh F	1	PHYS REV	62	137	429001	E	9S 9I 9T 9M 9L	<i>Au</i>		
Salgueiro L	2	PORTUGALIE PHYS	3	117	519015	E	9L 9S	<i>Au</i>		
Ferreira J	1	COMPT REND	241	1929	559007	E	9L 9S 9I	<i>Au</i>		
Mande C	1	ANN PHYSIQUE	5	1559	609036	E	9L 9S	<i>Au</i>		100
							9L 9M	<i>Au</i>		100
Goldberg M	1	J PHYS RADIUM	22	743	619032	E	9L 9I	<i>Au</i>		
Curry C	2	PHIL MAG	21	659	709016	E	9L 5B 5D 6T 5N	<i>AuAl</i>	50	67
Williams M	4	NBS IMR SYMP	3		709081	E	9L 6T	<i>AuAl</i>		67 (1)
Kapoor Q	3	BAND STRU SPECT		215	739008	E	9L	<i>AuAl</i>		
Norris P	3	BAND STRU SPECT		229	739009	E	9L	<i>AuMg</i>		
Mande C	1	ANN PHYSIQUE	5	1559	609036	E	9L 6P	<i>AuPd</i>	21	80
Hedman J	9	PHYS SCRIPTA	4	195	719188	E	9L	<i>AuPd</i>	45	86
Holliday J	1	NORELCO REPORTR	14	84	679388	E	9K	<i>B N</i>		50
Korsunski M	2	AKADNAUKUR SSR		15	579023	E	9L 9S	<i>B Nb</i>		67
Korsunski M	2	BULLACADSCIUSSR	24		609026	E	9L 9S 5D 9G	<i>B Nb</i>		67
Fomichev V	3	J PHYS CHEM SOL	29	1025	689141	E	9K 6H 6U	<i>B P</i>		50
							9L 6H 6U	<i>B P</i>		50
Wiech G	1	Z PHYSIK	216	472	689248	E	9L 9K 5B	<i>B P</i>		50
Rumsh M	4	VESTNIKLEN UNIV	16	49	689371	E	9K 9A	<i>B P</i>		50
							9L 9A	<i>B P</i>		50
Nemoshkalen V	2	SOVPHYS SOLIDST	12	46	709196	R	9L 9K 5D	<i>B P</i>		
Nemnonov S	5	TRANSMETSOCAIME	245	1191	699104	R	9K 9A 9L 5D 3Q	<i>B T</i>		67
Holliday J	1	RONTGENCHEMBIND		139	669203	E	9L 9I 4L	<i>B Ti</i>		67
							9K 4L 4A	<i>B Ti</i>		67
Holliday J	1	ADV XRAY ANALYS	9	365	669246	E	9L 4L	<i>B Ti</i>		67
							9K 4L	<i>B Ti</i>		67
Nemnonov S	1	PHYS METALMETAL	24	66	679213	R	9K 9L	<i>B Ti</i>		67
Holliday J	1	NORELCO REPORTR	14	84	679388	E	9L	<i>B Ti</i>		67
Fischer D	2	J APPL PHYS	39	4757	689262	E	9A 9L	<i>B Ti</i>		67
Fischer D	1	TECH REPORT AD	713	100	709312	R	9A 9L	<i>B Ti</i>		67
Fischer D	1	J APPL PHYS	40	4151	699173	E	9L 9A 3Q 9R 9S	<i>B V</i>		67
Fischer D	1	TECH REPORT AD	713	100	709312	R	9A 9L	<i>B V</i>		67
Senemaud C	2	J PHYSIQUE	32S	193	719205	E	9L	<i>B V</i>		33
Randall C	1	PHYS REV	57	786	409004	E	9S 9L	<i>Ba</i>		
Ferreira J	1	COMPT REND	241	1929	559007	E	9L 9S 9I	<i>Bi</i>		
Goldberg M	1	J PHYS RADIUM	22	743	619032	E	9L 9I	<i>Bi</i>		
Das Gupta K	3	J SCI INDUS RES	14B	129	559005	E	9K 9L	<i>C</i>		
Holliday J	1	J APPL PHYS	38	4720	679258	E	9L	<i>C CoMn</i>		20
								<i>C CoMn</i>		
								<i>C CoMn</i>		
							9L	<i>C Cr</i>		40
							9L	<i>C Fe</i>	00	25
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9L 5D	<i>C Fe</i>		
Barinskii R	2	BULLACADSCIUSSR	21	1375	579004	E	9A 9L	<i>C Mo</i>		33
Korsunski M	2	AKADNAUKUR SSR		15	579023	E	9L 9S	<i>C Nb</i>		50
Korsunski M	2	BULLACADSCIUSSR	24		609026	E	9L 9S 5D 9G	<i>C Nb</i>		50

(1) 500 °C

b. L-Spectra-Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Nemnonov S	4	PHYS METALMETAL	28	192	699071	E	9L 9S	C Nb		46
Ramqvist L	5	J PHYS CHEM SOL	32	149	719000	E	9L 4L 9V 5V 3Q	C Nb	43	48
							9K 4L 9V 5V 3Q	C Nb	43	48
Das Gupta K	1	PHYS REV	80	281	509003	E	9L	C Si		
Wiech G	1	Z PHYSIK	207	428	679261	E	9L 9I 5B 5D	C Si		50
Zhukova I	4	SOVPHYS SOLIDST	10	1097	689258	E	9L 4N 6G 5B 5D	C Si		50
Wiech G	1	SXS BANDSPECTRA		59	689325	E	9L 5D 5B	C Si	00	50
							9K 5D 5B	C Si	00	50
Nemoshkalenk V	2	SOVPHYS SOLIDST	12	46	709196	R	9L 9K 5D	C Si		
Hayasi Y	2	INTCONF VUPPHYS	3	719173	E	9L		C Si		50
Nemnonov S	5	TRANSMETSOCAIME	245	1191	699104	R	9K 9A 9L 5D 3Q	C T		
Ramqvist L	5	J PHYS CHEM SOL	32	149	719000	E	9L 3Q 4L	C Ta	49	50
								C Ta	49	50
Holliday J	1	RONTGENCHEMBIND		139	669203	E	9L 9I 4L	C Ti	45	50
							9K 4L 4A	C Ti		50
Holliday J	1	ADV XRAY ANALYS	9	365	669246	E	9L 4L	C Ti	45	49
							9K 4L	C Ti	45	49
Nemnonov S	1	PHYS METALMETAL	24	66	679213	R	9K 9L	C Ti		50
Fischer D	2	J APPL PHYS	39	4757	689262	E	9A 9L	C Ti		50
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9L 5D	C Ti		50
							9K	C Ti		50
Brytov I	3	PHYS METALMETAL	26	178	689363	E	9L 5B	C Ti		50
Fischer D	1	J APPL PHYS	41	3922	709186	R	9K 5B	C Ti		50
							9L 9A 5B	C Ti		50
Fischer D	1	TECH REPORT AD	713	100	709312	R	9A 9L	C Ti		50
Ramqvist L	5	J PHYS CHEM SOL	32	149	719000	E	9K 9L 3Q 5B	C Ti		50
Holliday J	1	J PHYS CHEM SOL	32	1825	719196	E	9L 4L	C Ti		49
Brytov I	3	PHYS METALMETAL	26	178	689363	E	9L 5B	C V		47
Fischer D	1	J APPL PHYS	40	4151	699173	E	9L 9A 3Q 9R 9S	C V		50
Zhurakovs E	3	INORGANIC MATLS	6	183	709306	E	9L 4A 1H 1B 1T	C V	27	48
							9K 4L	C V	27	48
Fischer D	1	TECH REPORT AD	713	100	709312	R	9A 9L	C V		50
Ramqvist L	5	J PHYS CHEM SOL	32	149	719000	E	9K 4L 9V 5V 3Q	C V	42	47
							9L 4L 9V 5V 3Q	C V	42	47
								C V	42	47
Zhurakovs E	8	SOV PHYS DOKL	15	877	719021	E	9L 4A 1H 4L	C V	28	47
							9K 4L	C V	28	47
Ramqvist L	5	J PHYS CHEM SOL	32	149	719000	E	9L 4L 9V 5V 3Q	C Zr		48
Kingston R	1	PHYS REV	84	944	519010	E	9L 5B 5D 0S	Ca		(1)
Kingston R	1	TECH REPORT MIT	193	1	519011	E	9L	Ca		
Skinner H	3	PHIL MAG	45	1070	549020	E	9L 9T 5D	Ca		
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	CaAl		67
Skinner H	3	PHIL MAG	45	1070	549020	E	9L 9T 5D	Ca O		50
Hayasi Y	2	INTCONF VUPPHYS	3	719173	E	9L		CaSi		50
Wiech G	2	J PHYSIQUE	32S	201	719206	E	9R 9L	CaSi	33	67
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	CaSi		33
Randall C	1	PHYS REV	57	786	409004	E	9S 9L	Cd		
Nikiforov I	3	ARKIV FYSIK	26	319	649106	E	9L 5B 9R 9I	Cd		
Noreland E	1	ARKIV FYSIK	26	341	649107	E	9E 9L 5B 5D 0D	Cd		
Noreland E	2	ARKIV FYSIK	26	161	649110	E	9L 9R 9S 0D 5B	Cd		
Nemoshkalenk V	2	PHYS LET	30A	44	699153	E	9L 4A 5B 5D	Cd		
Gale B	3	PHIL MAG	20	79	699112	E	9L 3N 1B 6F 8U	CdMg		25
Wiech G	2	J PHYSIQUE	32S	201	719206	E	9R 9L	CdS		50
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	CeAl		67
							9K 9L	CeSi		33

(1) RT to 100 °C

b. L-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
donneue C	1	J PHYSIQUE COLL	28	65	679084	E	9A 9L 00	ClCu	00	50
Bonneille C	1	SXS BANDSPECTRA		163	689332	E	9L 5D 00 9A	ClCu		50
Henke B	1	ADV XRAY ANALYS	9	430	669244	E	9L 01	ClNa		50
Henke B	2	J APPL PHYS	37	922	669013	E	9L 9C 00	ClX	100	
Henke B	1	ADV XRAY ANALYS	9	430	669244	E	9L 00	ClX		
Skinner H	3	PHIL MAG	45	1070	549020	E	9L 9T 5D 9M	Co		
Holliday J	1	J APPL PHYS	33	3259	629095	E	9L 9S	Co	100	
Bonneille C	1	THESIS U PARIS		649057	E	9A 9L 9R	Co			
Fischer D	1	J APPL PHYS	36	2048	659063	E	9L 9S 9I 4L 5B	Co		
Nemoshkalenk V	2	SOV PHYS DOKL	12	735	689006	E	9F 9K 9L	Co	100	
Bonneille C	1	SXS BANDSPECTRA		163	689332	E	9L 5D	Co		
Hanzely S	2	NBS IMR SYMP	3		709116	E	9A 9L 9R 9S	Co		
Curry C	2	PHIL MAG	21	659	709016	E	9L 5B 5D 6T 5N	CoAl		71
Kapoor Q	3	BAND STRU SPECT		215	739008	E	9L	CoAl	50	
Watson L	3	MUNICH SYMP			739014	E	9L	CoAl		
Holliday J	1	J APPL PHYS	38	4720	679258	E	9L	CoMn C		20
								CoMn C		
								CoMn C		
Bonneille C	1	THESIS U PARIS		649057	E	9A 9L 9R	Co O			43
Fischer D	1	J APPL PHYS	36	2048	659063	E	9L 9S 9I 4L 5B	Co O		43
Menshikov A	3	PHYS STAT SOLID	35	89	699182	E	9K 5X 5B	CoO		50
							9L	Co O		50
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9L	Co O	33	40
Hayasi Y	2	INTCONF VUUPHYS	3		719173	E	9L	CoSi		67
Holliday J	1	NBS IMR SYMP	3		709117	E	9L	CoTi		50
Holliday J	1	J PHYS CHEM SOL	32	1825	719196	E	9L 4L	CoTi		50
Skinner H	3	PHIL MAG	45	1070	549020	E	9L 9T 5D 9M	Cr	100	
Holliday J	1	J APPL PHYS	33	3259	629095	E	9L 9S	Cr		
Bonneille C	1	COMPT REND	254	2313	629118	E	9L 9A	Cr		
Bonneille C	1	COMPT REND	254	2313	629128	E	9L 9A	Cr		100
Lukirskii A	2	BULLACADSCIUSSR	28	749	649144	E	9L 4A 9I 6O	Cr	100	(1)
Fischer D	1	J APPL PHYS	36	2048	659063	E	9L 9S 9I 4L 5B	Cr	100	
Holliday J	1	J APPL PHYS	38	4720	679258	E	9L	Cr		
Brytov I	1	PHYS METALMETAL	24	174	679328	E	9L 4A	Cr		
Nemoshkalenk V	2	SOV PHYS DOKL	12	735	689006	E	9F 9K 9L	Cr	100	
Nemnonov S	2	PHYS METALMETAL	26	43	689236	R	9K 9L	Cr		
Bonneille C	1	SXS BANDSPECTRA		163	689332	E	9A 9L 5B 5D	Cr		
Nemoshkalenk V	4	UKRAIN PHYS J	13	837	699109	R	9K 9L	Cr		100
Sommer G	4	PHYS METALMETAL	30	233	709353	T	9L 9M 9A	Cr		100
Fischer D	1	PHYS REV	4B	1778	719106	E	9A 9L 9R	Cr		100
Fischer D	1	J PHYS CHEM SOL	32	2455	719147	E	9L 9A	Cr		100
Hague C	2	MUNICH SYMP			739010	E	9L	Cr		100
Curry C	2	PHIL MAG	21	659	709016	E	9L 5B 5D 6T 5N	CrAl		70
Watson L	3	MUNICH SYMP			739014	E	9L	CrAl		36
Holliday J	1	J APPL PHYS	38	4720	679258	E	9L	CrC		40
Fischer D	1	J PHYS CHEM SOL	32	2455	719147	E	9K 9A	CrK O		14
							9L 9A	CrK O		29
								CrK O		57
Borovskii I	2	PHYSMETALMETAL	7	61	599006	E	9K 9A 6P	CrMo	99	100
							9A 9L	CrMo	99	100
Fischer D	1	J PHYS CHEM SOL	32	2455	719147	E	9K 9A	CrNaO		14
							9L 9A	CrNaO		29
								CrNaO		57
Skinner H	3	PHIL MAG	45	1070	549020	E	9L 9T 5D	CrO		40
Bonneille C	1	THESIS U PARIS		649057	E	9A 9L 9R	CrO			100
Lukirskii A	2	BULLACADSCIUSSR	28	749	649144	E	9L 4A 9I	CrO		40 (1)

(1) 1100 °C

b. L-Spectra-Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Fischer D	1	J APPL PHYS	36	2048	659063	E	9L 9S 9I 4L 5B	CrO		40
Nemoshkalenk V	4	UKRAIN PHYS J	13	837	699109	E	9L	CrO		40
							9A 9K	CrO		40
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9L	CrO		40
Hague C	2	MUNICH SYMP			739010	E	9L	CrO		40
Hayasi Y	2	INTCONF VUVPYHS	3		719173	E	9L	CrSi		50
Holliday J	1	NBS IMR SYMP			709117	E	9L	CrTi		50
Holliday J	1	J PHYS CHEM SOL	32	1825	719196	E	9L 4L	CrTi		67
Randall C	1	PHYS REV	57	786	409004	E	9S 9L	Cs		
Cauchois Y	1	PHIL MAG	44	173	539002	E	9L	Cu		
Skinner H	3	PHIL MAG	45	1070	549020	E	9L 9T 5D 9M 9A	Cu		
Shinoda G	1	X SEN	8	55	559023	E	9L 9M	Cu		
Cauchois Y	2	COMPT REND	245	1230	579015	E	9A 9L 9I 9B 6F	Cu		
Lucasson A	1	COMPT REND	245	1794	579024	E	9L 9S 4L 5B	Cu		
Van Den b C	1	THESISGRONINGEN			579055	E	9A 9L 0I	Cu		
Korsunski M	2	ISLAKADNAUKSSR	3	249	589013	E	9L	Cu		
Rumyantse I	2	OPT SPECTR	7	498	599029	E	9L	Cu		
Holliday J	1	J APPL PHYS	33	3259	629095	E	9L 9S	Cu		
Fujimori K	1	SCI REP TOHOKU	47	50	639123	E	9L 9S	Cu		100
Bonnelle C	1	THESIS U PARIS			649057	E	9A 9L 9R	Cu		100
Fischer D	1	J APPL PHYS	36	2048	659063	E	9L 9S 9I 4L 5B	Cu		
Cauchois Y	2	OPTPROPS ABELES			659083	E	9A 9L	Cu		100
Bonnelle C	3	RONTGENCHEMBIND			669139	E	9E 9L	Cu		100
Nemnonov S	3	PHYS METALMETAL	22	54	669158	E	9L 9G 9A 5B	Cu		100
Bonnelle C	1	J PHYSIQUE COLL	28	65	679084	E	9A 9L 9S	Cu		
Fischer D	2	NORELCO REPORTR	14	92	679387	R	9L 9R	Cu		100
Liefeld R	1	SXS BANDSPECTRA			689330	E	9L 9A 9H 9R 9S	Cu		
Bonnelle C	1	SXS BANDSPECTRA			689332	E	9L 5D	Cu		
Willens R	4	PHYS REV LET	23	413	699092	E	9L 0T	Cu		
Zyryanov V	2	PHYS METALMETAL	27	191	699116	E	9L 9S 0D	Cu		100
Goodings D	2	J PHYS C	2	1808	699161	T	9L 9M 5D 5B	Cu		
Blokhin M	2	SOV PHYS DOKL	13	1116	699353	E	9L 9S	Cu		
Willens R	1	NBS IMR SYMP			709111	T	9L 6X	Cu		100
Nemnonov S	2	PHYS METALMETAL	29	141	709348	E	9A 9L	Cu		100
Ribble T	1	PHYS STAT SOLID	6A	473	719074	E	9L 9R 9S	Cu		100
Farineau J	1	J PHYS RADIUM	10	327	399007	E	9L	Cu Al	00	96
Shinoda G	1	X SEN	8	55	559023	E	9L 9M	Cu Al		66
Lucasson A	1	COMPT REND	245	1794	579024	E	9L 9S 4L 5B	Cu Al	2	96
Lucasson A	1	ANN PHYSIQUE	5	509	609031	E	9A 9L	Cu Al	00	98
Appleton A	1	CONTEMP PHYS	6	50	649132	R	5D 9L	CuAl	19	100
Fischer D	2	TECH REPORT AD	807	479	669226	E	9L	Cu Al	00	80
Baun W	2	J APPL PHYS	38	2092	679108	E	9S 9I 9L 5B 4L	Cu Al	0	80
Curry C	1	SXS BANDSPECTRA			689333	E	9L 5D	CuAl		67
Curry C	2	PHIL MAG	21	659	709016	E	9L 5B 5D 6T 5N	CuAl	50	67
Fabian D	3	NBS IMR SYMP			709114	E	9L	CuAl		80
Nemnonov S	4	PHYS STAT SOLID	43	319	719055	E	9L	CuAl	33	67
Watson L	1	BAND STRU SPECT			739003	R	9L 9S 5D	CuAl		50
Kapoor Q	3	BAND STRU SPECT			739008	E	9L	CuAl		
Watson L	3	MUNICH SYMP			739014	E	9L	CuAl	20	90
Bonnelle C	1	J PHYSIQUE COLL	28	65	679084	E	9A 9L 00	Cu Cl		50
Bonnelle C	1	SXS BANDSPECTRA			689332	E	9L 5D 00 9A	Cu Cl	00	50
Das Gupta K	1	TECH REPORT AD	412	791	639088	E	9L 5B	CuFe		83
Curry C	2	PHIL MAG	21	659	709016	E	9L 5B 5D 6T 5N	CuMg	33	67
Norris P	3	BAND STRU SPECT			739009	E	9L	CuMg		
Lucasson A	1	COMPT REND	245	1794	579024	E	9L 9S 4L 5B	CuNi	9	79

b. L-Spectra-Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Lucasson A	1	ANN PHYSIQUE	5	509	609031	E	9A 9L	Cu Ni	09	100
Bonnelle C	1	COMPT REND	248	2324	599003	E	9L	Cu O	50	66
Fujimori K	1	SCI REP TOHOKU	47	50	639123	E	9L 9S	Cu O	50	67
Bonnelle C	1	THESIS U PARIS			649057	E	9A 9L 9R	Cu O	50	67
Fischer D	1	J APPL PHYS	36	2048	659063	E	9L 9S 9I 4L 5B	Cu O	50	67
Bonnelle C	3	RONTGENCHEMBIND		20	669139	E	9E 9L	Cu O	50	67
							9E 9L	Cu O		67
Fischer D	2	TECH REPORT AD	807	479	669226	E	9L	Cu O	50	100
Bonnelle C	1	J PHYSIQUE COLL	28	65	679084	E	9A 9L	Cu O	50	67
Bonnelle C	1	SXS BANDSPECTRA		163	689332	E	9L 5D	Cu O		67
							9L 5B	Cu O		67
Zyryanov V	2	PHYS METALMETAL	27	191	699116	E	9L 9S 0D	Cu O	50	67
Menshikov A	3	PHYS STAT SOLID	35	89	699182	E	9K 5X 5B	Cu O	50	50
							9L	Cu O		50
Akopdzhano R	1	SOVPHYS SOLIDST	12	1095	709228	E	9A 9K 9S 5B	Cu O		67
							9L 5B	Cu O		67
Ribble T	1	PHYS STAT SOLID	6A	473	719074	E	9L 9R 9S	Cu O	50	67
Hedman J	9	PHYS SCRIPTA	4	195	719188	E	9L	CuPd		60
							9K	CuPd		60
Curry C	1	SXS BANDSPECTRA		173	689333	E	9L 5D	CuSi		75
Harrison R	1	PHIL MAG	22	131	709184	E	9L 5N	CuSi	75	90
Lucasson A	1	COMPT REND	245	1794	579024	E	9L 9S 4L 5B	Cu Zn	20	80
Rumyantse I	2	OPT SPECTR	7	498	599029	E	9L	CuZn		
Lucasson A	1	ANN PHYSIQUE	5	509	609031	E	9A 9L	Cu Zn	20	100
Nemnonov S	2	PHYS METALMETAL	29	141	709348	E	9L	CuZn		52
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	Dy Al		67
Sakellari P	1	COMPT REND	247	921	589023	E	9L 9S	Er		
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	Er Al		67
Sakellari P	1	COMPT REND	236	1767	539012	E	9A 9L	Eu		
Sakellari P	1	COMPT REND	236	1547	539013	E	9A 9L	Eu		
Sakellari P	1	J PHYS RADIUM	16	422	559020	E	9L 9F 9I 5B 6U	Eu		
Sakellari P	1	J PHYS RADIUM	16	271	559019	E	9L 9S 5B 5D	Eu O		40
Koster A	1	PROC KONNEDACAD	74	332	719193	E	9L	F Fe		75
Sarma A	2	J PHYS CHEM SOL	32	1423	719191	E	9L 9I	F La		75
Sarma A	2	J PHYS CHEM SOL	33	935	729039	E	9L 9I	F La		75
Skinner H	3	PHIL MAG	45	1070	549020	E	9L 9T 5D 9M	Fe		
Shinoda G	1	X SEN	8	55	559023	E	9L 9M	Fe		
Holliday J	1	J APPL PHYS	33	3259	629095	E	9L 9S	Fe		
Bonnelle C	1	THESIS U PARIS			649057	E	9A 9L 9R	Fe		100
Fischer D	1	J APPL PHYS	36	2048	659063	E	9L 9S 9I 4L 5B	Fe		
Holliday J	1	J APPL PHYS	38	4720	679258	E	9L	Fe		
Nemoshkalen V	2	SOV PHYS DOKL	12	735	689006	E	9F 9K 9L	Fe		
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9L 5D	Fe		
Bonnelle C	1	SXS BANDSPECTRA		163	689332	E	9A 9L 5B 5D	Fe		
Hanzely S	2	NBS IMR SYMP	3		709116	E	9A 9L 9R 9S	Fe		100
Smith D	2	J PHYS	4D	147	719004	E	9L 9I 9R	Fe		100
Fischer D	1	PHYS REV	4B	1778	719106	R	9L 6G	Fe		100
Koster A	1	PROC KONNEDACAD	74	332	719193	E	9L	Fe		100
Holliday J	1	ADV XRAY ANALYS	14	243	719202	E	9L 9R 9A	Fe		
Hague C	2	MUNICH SYMP			739010	E	9L	Fe		100
Das Gupta K	1	PHYS REV	80	281	509003	E	9L	Fe Al		25
Das Gupta K	1	TECH REPORT AD	412	791	639088	E	9L 5B	FeAl	0	100
Fischer D	2	TECH REPORT AD	807	479	669226	E	9L	Fe Al	00	95
Appleton A	2	PHIL MAG	16	1031	679278	E	9M	Fe Al	18	28
							9L	FeAl	18	28
Curry C	1	SXS BANDSPECTRA		173	689333	E	9L 5D	FeAl	18	28

b. L-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Nemoshkalen V	2	UKRAIN PHYS J	13	1022	699240	R	8C 9E 9L	FeAl	25	72
Curry C	2	PHIL MAG	21	659	709016	E	9L 5B 5D 6T 5N	FeAl		71
Kapoor Q	3	BAND STRU SPECT		215	739008	E	9L	FeAl		
Watson L	3	MUNICH SYMP			739014	E	9L	FeAl	25	75
Holliday J	1	J APPL PHYS	38	4720	679258	E	9L	FeC	00	25
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9L 5D	FeC		
Das Gupta K	1	TECH REPORT AD	412	791	639088	E	9L 5B	FeCu		83
Koster A	1	PROC KONNEDACAD	74	332	719193	E	9L	FeF		75
Solomon J	2	APPL SPECTRY	25	719192	E	9L 9A		FeNi		40
Skinner H	3	PHIL MAG	45	1070	549020	E	9L 9T 5D	FeO		50
Das Gupta K	1	TECH REPORT AD	412	791	639088	E	9L 5B	FeO		43
Bonnelle C	1	THESIS U PARIS			649057	E	9A 9L 9R	FeO		43
Fischer D	1	J APPL PHYS	36	2048	659063	E	9L 9S 9I 4L 5B	FeO	40	43
Fischer D	2	TECH REPORT AD	807	479	669226	E	9L	FeO	40	50
Menshikov A	3	PHYS STAT SOLID	35	89	699182	E	9K 5X 5B	FeO		50
							9L	FeO		50
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9L	FeO		40
Smith D	2	J PHYS	4D	147	719004	E	9L 9I 9R	FeO		40
Koster A	1	PROC KONNEDACAD	74	332	719193	E	9L	FeO	40	50
Hague C	2	MUNICH SYMP			739010	E	9L	FeO		40
Das Gupta K	1	TECH REPORT AD	412	791	639088	E	9L 5B	FeS		50
Koster A	1	PROC KONNEDACAD	74	332	719193	E	9L	FeS	33	50
Wiech G	2	J PHYSIQUE	32S	201	719206	E	9R 9L	FeS		67
Das Gupta K	1	TECH REPORT AD	412	791	639088	E	9L 5B	FeSi	75	91
Hayasi Y	2	INTCONF VUVPHYS		3	719173	E	9L	FeSi		50
Holliday J	1	J PHYS CHEM SOL	32	1825	719196	E	9L 4L	FeTi		50
Lucasson A	1	ANN PHYSIQUE	5	509	609031	E	9A 9L	Ga		
Drahokoup J	3	CZECH J PHYS	18B	1034	689222	E	9K 9L 0X	GaGe		00
Wiech G	1	Z PHYSIK	216	472	689248	E	9L 9K 5B	GaP		50
Sakellari P	1	COMPT REND	236	1767	539012	E	9A 9L	Gd		
Sakellari P	1	COMPT REND	236	1244	539014	E	9A 9L	Gd		
Sakellari P	1	J PHYS RADIUM	16	422	559020	E	9L 9F 9I 5B 6U	Gd		
Nigam A	2	INDIAN J PAPHYS	6	644	689296	E	9L	Gd		
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	GdAl		67
Sakellari P	1	J PHYS RADIUM	16	271	559019	E	9L 9S 5B 5D	GdO		40
Borovikov G	2	BULLACADSCIUSSR	21	1426	579013	E	9L	Ge		
Lucasson A	1	ANN PHYSIQUE	5	509	609031	E	9A 9L	Ge		
Lyapin V	1	SOVPHYS SOLIDST	8	2851	679109	E	9L 9K 5B	Ge		
Deslattes R	1	PHYS REV	172	625	689213	E	9L 9K 0X	Ge		
Drahokoup J	3	CZECH J PHYS	18B	1034	689222	E	9K 9L 0X	Ge		100
Blokhin M	4	SOVPHYS SOLIDST	11	12	699119	E	9L 9S	Ge		100
Klima J	1	J PHYS		3C	709004	T	9K 9L 9M 6T	Ge		100
Drahokoup J	3	CZECH J PHYS	18B	1034	689222	E	9K 9L 0X	GeCa		00
Borovikov G	2	BULLACADSCIUSSR	21	1426	579013	E	9L	GeO		33
Drahokoup J	3	CZECH J PHYS	18B	1034	689222	E	9K 9L 0X	GeSb		00
Sarma A	2	J PHYS CHEM SOL	32	1423	719191	E	9L 9I	H La	67	75
Bos W	1	INTL MEET H MET		665	720574	E	9L	H La	68	69
Bos W	1	BERBUN PHYSICHEM	76	846	720575	E	9L 4B	H La	67	75
Sarma A	2	J PHYS CHEM SOL	33	935	729039	E	9L 9I	H La	67	75
Gilberg E	1	MUNICH SYMP			739019	E	9L	H Nb	40	70
Das Gupta K	1	APPL PHYS LET	6	104	659057	E	9L 9S 0Y	H Pd		40
Morlet J	1	BULLACADROYBELG	35	1059	499003	E	9K 9L 9S	Hg		
Barrere G	1	COMPT REND	233	376	519001	E	9K 9L	Hg		
Deodhar G	2	J SCI INDUS RES	11B	1	529008	E	9L	Hg		
Deodhar G	2	NATURE	169	889	529009	E	9L	Hg		

b. L-Spectra-Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Ferreira J	1	COMPT REND	241	1929	559007	E	9L 9S 9I	Hg		
Goldberg M	1	J PHYS RADIUM	22	743	619032	E	9L 9I	Hg		
Sakellari P	1	COMPT REND	236	1767	539012	E	9A 9L	Ho		
Sakellari P	1	COMPT REND	236	1014	539015	E	9A 9L	Ho		
Sakellari P	1	J PHYS RADIUM	16	422	559020	E	9L 9F 9I 5B 6U	Ho		
Sakellari P	1	J PHYS RADIUM	16	271	559019	E	9L 9S 5B 5D	Ho O		40
Randall C	1	PHYS REV	57	786	409004	E	9S 9L 00	I		
							9S 9L	In		
Noreland E	1	ARKIV FYSIK	26	341	649107	E	9E 9L 5B 5D 0D	In		
Noreland E	2	ARKIV FYSIK	26	161	649110	E	9L 9R 9S 0D 5B	In		
Nemoshkalenk V	2	PHYS LET	30A	44	699153	E	9L 4A 5B 5D	In		
Rooke G	1	SXS BANDSPECTRA		185	689334	E	9L 5D 5B	InNa		
Wiech G	1	Z PHYSIK	216	472	689248	E	9L 9K 5B	InP		50
Hirsh F	1	PHYS REV	62	137	429001	E	9S 9I 9T 9M 9L	Ir		
Ferreira J	1	COMPT REND	241	1929	559007	E	9L 9S 9I	Ir		
Merrill J	2	ANN PHYS	14	166	619057	E	9L 4A 9A	Ir		
Nigam A	1	INDIAN J PAPHYS	1	53	639097	E	9L 9Q	Ir		
							9L	Ir		
Kingston R	1	PHYS REV	84	944	519010	E	9L 5B 5D 0S	K		
Kingston R	1	TECH REPORT MIT	193	1	519011	E	9L	K		(1)
Crisp R	1	PHIL MAG	5	1161	609014	E	9L 9M	K		
Rooke G	1	SXS BANDSPECTRA		3	689322	E	9L 9S 9T 5B 6T	K		
Koster A	1	PROC KONNEDACAD	74	332	719193	E	9L	K Mn O		17
Fischer D	1	J PHYS CHEM SOL	32	2455	719147	E	9K 9A	K O Cr		14
							9L 9A	K O Cr		29
								K O Cr		57
Moore H	1	PROC PHYS SOC	70A	466	579028	E	9L 00	Kr		
Sarma A	2	J PHYS CHEM SOL	32	1423	719191	E	9L 9I	La		100
Bos W	1	INTL MEET H MET		665	720574	E	9L	La		100
Bos W	1	BERBUN PHYSICHEM	76	846	720575	E	9L	La		100
Sarma A	2	J PHYS CHEM SOL	33	935	729039	E	9L 9I	La		100
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	LaAl		67
Sarma A	2	J PHYS CHEM SOL	32	1423	719191	E	9L 9I	LaF		75
Sarma A	2	J PHYS CHEM SOL	33	935	729039	E	9L 9I	LaF		75
Sarma A	2	J PHYS CHEM SOL	32	1423	719191	E	9L 9I	La H		75
Bos W	1	INTL MEET H MET		665	720574	E	9L	La H	67	75
Bos W	1	BERBUN PHYSICHEM	76	846	720575	E	9L 4B	La H	67	75
Sarma A	2	J PHYS CHEM SOL	33	935	729039	E	9L 9I	La H	67	75
Sarma A	2	J PHYS CHEM SOL	32	1423	719191	E	9L 9I	La O		40
Bos W	1	INTL MEET H MET		665	720574	E	9L	La O		40
Sarma A	2	J PHYS CHEM SOL	33	935	729039	E	9L 9I	La O		40
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	LaSi		33
Crisp R	1	THESIS U W AUST		1	619046	E	9L 0I	LiAl		
							9K 0I	LiAl		
Catterall J	2	PHIL MAG	4	1164	599008	E	9K	LiMg		55
							9L	LiMg	05	55
Crisp R	2	PHIL MAG	5	1205	609016	E	9K	LiMg	15	70
							9L	LiMg	15	70
Crisp R	1	THESIS U W AUST		1	619046	E	9K 0I	LiMg	15	70
							9L 0I	LiMg	15	70
Hirsh F	1	PHYS REV	62	137	429001	E	9S 9I 9T 9L	Lu		
Jones H	3	PHYS REV	45	379	349000	T	9L	Mg		
Skinner H	1	PHILTRANSROYSOC	239A	95	409005	E	9L	Mg		
Cady W	2	PHYS REV	59	381	419001	E	9L	Mg		
Das Gupta K	1	PHYS REV	80	281	509003	E	9L	Mg		
Sen A	1	INDIAN J PHYS	30	415	569025	E	9L 9K 5B	Mg		

(1) RT to 100 °C

b. L-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Crisp R	1	AUSTRAL J PHYS	11	449	589006	E	9L	Mg		
Catterall J	2	PHIL MAC	4	1164	599008	E	9L	Mg		100
Crisp R	2	PHIL MAC	5	1205	609016	E	9L	Mg		
Sagawa T	1	SCI REP TOHOKU	45	232	619095	E	9L 9S	Mg		100
Rooke G	1	PHYS LET	3	234	639085	E	9S 9L	Mg		100
Brouers F	1	PHYS LET	11	297	649112	T	9L 6O 9S 9I	Mg		
Appleton A	2	PHIL MAC	12	245	659066	E	9L	Mg		100
Dimond R	1	PHIL MAC	15	631	679063	E	9R 9A 9L	Mg		
Brouers F	1	PHYS STAT SOLID	22	213	679124	T	9L 6O 9S 9I	Mg		
Appleton A	2	PHIL MAC	16	1031	679278	E	9L	Mg		
Watson L	3	J SCI INSTR	44	506	679289	E	9L 0I	Mg		
Rooke G	1	J PHYS	1C	776	689154	E	9L 9S 5P	Mg		
Rooke C	1	SXS BANDSPECTRA		3	689322	E	9L 9S 9T 5B 6T	Mg		
Watson L	3	SXS BANDSPECTRA		45	689324	E	9L 5D 9F 9S	Mg		
Fomichev V	2	SOVPHYS SOLIDST	10	2992	699089	E	9A 9L	Mg		
Gale B	3	PHIL MAC	20	79	699112	E	9L 3N 1B 6F 8U	Mg		100
Nemnonov S	2	PHYS METALMETAL	28	68	699218	R	9K 9L 5D	Mg		
Watson L	4	X RAY CONF KIEV	2	56	699289	R	9L 0D	Mg		
Kobayasi T	2	J PHYS SOC JAP	28	457	709055	T	6T 9E 9L 9T 9R	Mg		
							4A	Mg		
Curry C	2	PHIL MAC	21	659	709016	E	9L 5B 5D 6T 5N	Mg Ag		25
Norris P	3	BAND STRU SPECT		229	739009	E	9L	Mg Ag		
Das Gupta K	2	PHIL MAC	46	77	559006	E	9L 5B	MgAl	5	100
Gale B	2	PHIL MAC	1	759	569016	E	9L	MgAl		
Appleton A	1	CONTEMP PHYS	6	50	649132	R	5D 9L	MgAl	04	100
							5D 9L	MgAl	00	88
Appleton A	2	PHIL MAC	12	245	659066	E	9L	MgAl	42	58
Dimond R	1	PHIL MAC	15	631	679063	E	9R 9A 9L	MgAl	43	60
Curry C	1	SXS BANDSPECTRA		173	689333	R	9L 5D	MgAl	41	100
Jacobs R	1	PHYS LET	30A	523	699213	T	9L 5D 6T	MgAl		50
Neddermey H	1	THESIS MUNCHEN			699355	E	9L 0I	MgAl	0	100
Neddermey H	1	NBS IMR SYMP	3		709115	E	9L	MgAl	0	100
Neddermey H	1	PHYS LET	38A	329	729045	E	9K 9L	MgAl	40	60
Neddermey H	1	BAND STRU SPECT		153	739002	E	9K 9L	MgAl	05	60
Norris P	3	BAND STRU SPECT		229	739009	E	9L	Mg Au		
Gale B	3	PHIL MAC	20	79	699112	E	9L 3N 1B 6F 8U	Mg Cd		25
Curry C	2	PHIL MAC	21	659	709016	E	9L 5B 5D 6T 5N	Mg Cu	33	67
Norris P	3	BAND STRU SPECT		229	739009	E	9L	Mg Cu		
Catterall J	2	PHIL MAC	4	1164	599008	E	9K	MgLi	05	55
							9L	MgLi	05	55
Crisp R	2	PHIL MAC	5	1205	609016	E	9K	MgLi	15	70
							9L	MgLi	15	70
Crisp R	1	THESIS U W AUST		1	619046	E	9K 0I	MgLi	15	70
							9L 0I	MgLi	15	70
Appleton A	2	PHIL MAC	16	1031	679278	E	9M	MgNi		67
							9L	MgNi		67
Curry C	1	SXS BANDSPECTRA		173	689333	E	9L 5D	MgNi	67	100
Norris P	3	BAND STRU SPECT		229	739009	E	9L	MgNi		
Das Gupta K	1	PHYS REV	80	281	509003	E	9L	MgO		
Fomichev V	3	SOVPHYS SOLIDST	10	2421	689249	E	9A 9L 5B	MgO		50
Neddermey H	1	THESIS MUNCHEN			699355	E	9L 0I	MgO		50
Das Gupta K	2	PHIL MAC	46	77	559006	E	9L 5B	MgSi	10	50
Curry C	1	SXS BANDSPECTRA		173	689333	E	9L 5D	MgSi		67
Harrison R	1	PHIL MAC	22	131	709184	E	9L 5N	MgSi		67
Hayasi Y	2	INTCONF VUVPHYS	3		719173	E	9L	MgSi		67

b. L-Spectra-Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Crisp R	1	THESIS U W AUST		1	619046	E	9L 01	MgSn		67
Gale B	1	PROC PHYS SOC	84	933	649114	E	9L 0D 6F 4A	MgX		
Neddermey H	1	MUNICH SYMP			739015	E	9K	MgZn	33	90
							9L	MgZn	33	90
Skinner H	3	PHIL MAG	45	1070	549020	E	9L 9T 5D 9M	Mn		
Shinoda G	1	X SEN	8	55	559023	E	9L 9M	Mn		
Fischer D	1	J APPL PHYS	36	2048	659063	E	9L 9S 9I 4L 5B	Mn		
Holliday J	1	J APPL PHYS	38	4720	679258	E	9L	Mn		
Koster A	1	PROC KONNEDACAD	74	332	719193	E	9L	Mn		100
Curry C	1	SXS BANDSPECTRA		173	689333	E	9L 5D	MnAl		75
Curry C	2	PHIL MAG	21	659	709016	E	9L 5B 5D 6T 5N	MnAl		75
Watson L	3	MUNICH SYMP			739014	E	9L	MnAl		86
Holliday J	1	J APPL PHYS	38	4720	679258	E	9L	Mn C Co		20
								Mn C Co		
								Mn C Co		
Skinner H	3	PHIL MAG	45	1070	549020	E	9L 9T 5D	Mn O		33
Fischer D	1	J APPL PHYS	36	2048	659063	E	9L 9S 9I 4L 5B	Mn O		33
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9L	Mn O		40
Koster A	1	PROC KONNEDACAD	74	332	719193	E	9L	Mn O	33	50
							9L	Mn O K		17
Hayasi Y	2	INTCONF VUVPYHS	3		719173	E	9L	MnSi		50
Hirsh F	2	PHYS REV	44	955	339000	E	9G 9S 9L	Mo		
Randall C	1	PHYS REV	57	786	409004	E	9S 9L	Mo		
Rogosa G	2	PHYS REV	92	1434	539011	E	9K 9L	Mo		
Borovskii I	5	BULLACADSCIUSSR	21	1389	579060	E	9A 9L 9S	Mo		100
Callon P	1	COMPT REND	248	2085	599010	E	9A 9L	Mo		
Shveitser I	3	BULLACADSCIUSSR	28	705	649122	R	9E 9L	Mo		
Nemoshkalenik V	2	SOVPYHS SOLIDST	9	268	679111	E	9L 9G 9I 5D	Mo		
Nemoshkalenik V	2	BULLACADSCIUSSR	31	999	679177	E	9L 5D	Mo		100
Nemoshkalenik V	2	PHYS LET	30A	44	699153	E	9L 4A 5B 5D	Mo		
Barinskii R	2	BULLACADSCIUSSR	21	1375	579004	E	9A 9L	Mo C		33
Borovskii I	2	PHYSMETALMETAL	7	61	599006	E	9K 9A 6P	MoCr	99	100
							9A 9L	Mo Cr	99	100
Barinskii R	2	BULLACADSCIUSSR	21	1375	579004	E	9A 9L	Mo O		25
							9A 9L	Mo O		33
							9A 9L	Mo S		25
							9A 9L	Mo S		33
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	MoSi		33
Fomichev V	1	SOVPYHS SOLIDST	10	597	689224	E	9L 6G 4L 5D 6T	N Al		50
							9K 6G 4L 5D 6T	N Al		50
Hayasi T	2	X RAY CONF KIEV	1	307	699286	E	9E 9L 3Q	N Al		50
Wiech G	2	J PHYSIQUE	32S	201	719206	E	9R 9L	N Al		50
Holliday J	1	NORELCO REPORTR	11	84	679388	E	9K	N B		50
Korsunski M	2	BULLACADSCIUSSR	24		609026	E	9L 9S 5D 9C	N Nb		50
Korsunski M	2	BULLACADSCIUSSR	27	371	639118	E	9L	N Nb	02	03
Nemnonov S	4	PHYS METALMETAL	28	192	699071	E	9L 9S	N Nb		50
							9L 9S	N O		50
Zhukova I	4	SOVPYHS SOLIDST	10	1097	689258	E	9L 6G 5B 5D 4L	N Si		57
							9K 6G 5B 5D 4L	N Si		57
Hayasi Y	2	INTCONF VUVPYHS	3		719173	E	9L	N Si		57
Nemnonov S	5	TRANSMETSOCAIME	245	1191	699104	R	9K 9A 9L 5D 3Q	N T		
Holliday J	1	RONTGENCHEMBIND		139	669203	E	9L 9I 4L	N Ti		50
Nemnonov S	1	PHYS METALMETAL	24	66	679213	R	9K 9L	N Ti		50
Brytov I	3	SOVPYHS SOLIDST	10	621	689041	E	9K 9I 9S 3Q	N Ti		50
							9L 9I 9S 3Q	N Ti		50

b. L-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Fischer D	2	J APPL PHYS	39	4757	689262	E	9A 9L	N Ti	17	50
Holliday J	1	NBS IMR SYMP	3		709117	E	9i	N Ti		50
Fischer D	1	J APPL PHYS	41	3922	709186	R	9K 5B	N Ti		50
							9L 9A 5B	N Ti		50
Fischer D	1	TECH REPORT AD	713	100	709312	R	9A 9L	N Ti		50
Ramqvist L	5	J PHYS CHEM SOL	32	149	719000	R	9K 9L 3Q 5B	N Ti		50
Holliday J	1	J PHYS CHEM SOL	32	1825	719196	E	9L 4L	N Ti	17	44
Fischer D	1	J APPL PHYS	40	4151	699173	E	9L 9A 3Q 9R 9S	N V		50
Fischer D	1	TECH REPORT AD	713	100	709312	R	9A 9L	N V		50
Skinner H	1	PHILTRANSROYSOC	239A	95	409005	E	9L	Na		
Cady W	2	PHYS REV	59	381	419001	E	9L	Na		
Landsberg P	1	PROC PHYS SOC	62A	806	499007	T	9L 9T	Na		
Sen A	1	INDIAN J PHYS	30	415	569025	E	9L 9K 5B	Na		
Crisp R	2	PHIL MAG	6	365	619025	E	9L	Na		
Crisp R	1	THESIS U W AUST		1	619046	E	9L 0I	Na		100
Sagawa T	1	SCI REP TOHOKUU	45	232	619095	E	9L 9S	Na		100
Rooke G	1	PHYS LET	3	234	639085	E	9S 9L	Na		100
Pirene J	2	PHYSICA	30	277	649108	T	9L 9T	Na		
Brouers F	1	PHYS LET	11	297	649112	T	9L 6O 9S 9I	Na		
Appleton A	1	CONTEMP PHYS	6	50	649132	R	9L 5D	Na		
Allotey F	1	PHYS REV	157	467	679087	T	9L 5N 5B 5D	Na		
Bose S	3	BULL AM PHYSSOC	12	531	679093	T	9L 5Z	Na		
Bose S	1	THESIS U MD		1	679114	T	9L	Na		
Brouers F	1	PHYS STAT SOLID	22	213	679124	T	9L 6O 9S 9I	Na		
Rooke G	1	J PHYS	1C	776	689154	E	9L 9S 5P	Na		
Morita A	2	J PHYS SOC JAP	25	1060	689276	T	9L	Na		
Rooke G	1	SXS BANDSPECTRA		3	689322	E	9L 9S 9T 5B 6T	Na		
Glick A	3	SXS BANDSPECTRA		319	689344	T	9I 5Z 9S 9L	Na		
Ausman G	2	PHYS REV	183	687	699001	T	9L 9I	Na		
Long P	2	PHYS REV	177	526	699009	T	9L 9I 9S	Na		
Ausman G	1	THESIS U MD		1	699118	T	9L 9S 6O 6Q	Na		
Nemnonov S	2	PHYS METALMETAL	28	68	699218	R	9L 5D	Na		
Kobayasi T	2	J PHYS SOC JAP	28	457	709055	T	6T 9E 9L 9T 9R	Na		
							4A	Na		
Mc Mullen T	1	J PHYS	3C	2178	709123	T	9L 9I 6T 5B	Na		
Brouers F	3	SOLIDSTATE COMM	8	1423	709185	T	9A 9I 6Q 9L	Na		
Bergersen B	3	BULL AM PHYSSOC	15	1355	709329	T	9A 9L	Na		
Bergersen B	3	J PHYS	1F	945	719001	T	9A 9I 6Q 9L	Na		
Bergersen B	3	PREPRINT			719003	T	9L 9A	Na		100
Henke B	1	ADV XRAY ANALYS	9	430	669244	E	9I 0I	NaCl		50
Rooke G	1	SXS BANDSPECTRA		185	689334	E	9I 5D 5B	NaIn		
Fischer D	1	J PHYS CHEM SOL	32	2455	719147	E	9K 9A	NaO Cr		14
							9L 9A	NaO Cr		29
								NaO Cr		57
Fischer D	1	APPL SPECTRY	25	263	719069	E	9L 9A 0O	NaO V		37
							9L 9A 0O	NaO V		50
							9L 9A 0O	NaO V		13
Korsunski M	2	BULLACADSCIUSSR	24		609026	E	9L 9S 5D 9C	Nb		
Korsunski M	2	BULLACADSCIUSSR	25	1033	619048	E	9L 9S	Nb		
Korsunski M	2	BULLACADSCIUSSR	25	1036	619098	T	9E 9L 0D	Nb		100
Korsunski M	2	SOV PHYS DOKL	7	141	629127	R	9L 5D	Nb		
Korsunski M	2	BULLACADSCIUSSR	27	819	639119	R	9E 9L	Nb		
Shveitser I	3	BULLACADSCIUSSR	28	705	649122	R	9E 9L	Nb		
Nemoshkalenk V 2		SOVPHYS SOLIDST	9	268	679111	E	9L 9C 9I 5D	Nb		
Nemoshkalenk V 2		BULLACADSCIUSSR	31	999	679177	E	9L 9I 5D	Nb		100
Nemoshkalenk V 2		PHYS LET	30A	44	699153	E	9L 4A 5B 5D	Nb		

b. L-Spectra-Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Ramqvist L	5	J PHYS CHEM SOL	32	149	719000	E	9L	Nb		100
Hague C	2	BAND STRU SPECT		251	739004	E	9L	Nb		100
Gilberg E	1	MUNICH SYMP			739019	E	9L	Nb		100
Watson L	3	J PHYSIQUE	32S	325	719208	E	9L	NbAl	25	75
Watson L	1	BAND STRU SPECT		125	739003	R	9L 9S 5D	NbAl	25	75
Kapoor Q	3	BAND STRU SPECT		215	739008	E	9L	NbAl		
Korsunski M	2	AKADNAUKUR SSR		15	579023	E	9L 9S	Nb B		67
Korsunski M	2	BULLACADSCIUSSR	24		609026	E	9L 9S 5D 9G	Nb B		67
Korsunski M	2	AKADNAUKUR SSR		15	579023	E	9L 9S	Nb C		50
Korsunski M	2	BULLACADSCIUSSR	24		609026	E	9L 9S 5D 9G	Nb C		50
Nemnonov S	4	PHYS METALMETAL	28	192	699071	E	9L 9S	Nb C		46
Ramqvist L	5	J PHYS CHEM SOL	32	149	719000	E	9L 4L 9V 5V 3Q	Nb C	43	48
							9K 4L 9V 5V 3Q	Nb C	43	48
Gilberg E	1	MUNICH SYMP			739019	E	9L	Nb H	40	70
Korsunski M	2	BULLACADSCIUSSR	24		609026	E	9L 9S 5D 9G	Nb N		50
Korsunski M	2	BULLACADSCIUSSR	27	371	639118	E	9L	Nb N	02	03
Nemnonov S	4	PHYS METALMETAL	28	192	699071	E	9L 9S	Nb N		50
Hague C	2	BAND STRU SPECT		251	739004	E	9L	Nb Sn		75
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	NdAl		67
Horak Z	1	PROC PHYS SOC	77	980	619039	T	9K 9L 9S 00	Ne		
Crisp R	1	THESIS U W AUST		1	619046	E	9L 0I	Ng		100
Cauchois Y	1	PHIL MAG	44	173	539002	E	9L	Ni		
Skinner H	3	PHIL MAG	45	1070	549020	E	9L 9T 5D 9M 9A	Ni		
Shinoda G	1	X SEN	8	55	559023	E	9L 9M	Ni		
Cauchois Y	2	COMPT REND	245	1230	579015	E	9A 9L 9I 9B 6F	Ni		
Van Den b C	1	THESISGRONINGEN			579055	E	9A 9L 0I	Ni		
Holliday J	1	J APPL PHYS	33	3259	629095	E	9L 9S	Ni		
Bonnelle C	1	THESIS U PARIS			649057	E	9A 9L 9R	Ni		100
Chopra D	2	BULL AM PHYSOC	9	404	649104	R	9L 9R 9I 4B	Ni		
Liefeld R	2	BULL AM PHYSOC	9	404	649105	R	9L 9T 9R	Ni		
Chopra D	1	THESIS NM STATE			649160	E	9L 9S 9R	Ni		100
Chopra D	1	THESIS N MEX ST		1	649161	E	9L 9R 9S 9A	Ni		
Fischer D	1	J APPL PHYS	36	2048	659063	E	9L 9S 9I 4L 5B	Ni		
Cauchois Y	2	OPTPROPS ABELES		83	659083	E	9A 9L	Ni		100
Nemnonov S	3	PHYS METALMETAL	21	44	669066	E	9L	Ni		
Bonnelle C	3	RONTGENCHEMBIND		20	669139	E	9E 9L	Ni		100
Cuthill J	4	PHYS REV	164	1006	679300	E	9M 9L 5D 9S	Ni		100
Liefeld R	1	SXS BANDSPECTRA		133	689330	E	9L 9A 9H 9R 9S	Ni		
Cuthill J	4	SXS BANDSPECTRA		151	689331	R	9L 9M 5D 5W 6T	Ni		100
Bonnelle C	1	SXS BANDSPECTRA		163	689332	E	9A 9L 5B 5D	Ni		
Chopra D	1	PHYS REV		1A 230	709035	E	9A 9L 9R	Ni		100 (1)
Holliday J	1	ADV XRAY ANALYS	13	136	709349	E	9L 9R	Ni		100
Willens R	2	PHYS REV		5B 1891	729042	E	9L 6X 0T	Ni		100
Farineau J	1	J PHYS RADIUM		10 327	399007	E	9K	NiAl	18	100
							9L	NiAl	00	89
Fischer D	2	PHYS REV	145	555	669148	E	9L 9S 9I 4L 5B	NiAl	0	90
Fischer D	2	TECH REPORT AD	807	479	669226	E	9L	NiAl	00	90
Cuthill J	3	J APPL PHYS	39	2204	689098	E	9L	NiAl	0	100
							9M	NiAl	0	100
Cuthill J	4	SXS BANDSPECTRA		151	689331	R	9M 5D	NiAl	0	100
							9L 5D	NiAl	0	100
Curry C	2	PHIL MAG	21	659	709016	E	9L 5B 5D 6T 5N	NiAl		50
Watson L	3	MUNICH SYMP			739014	E	9L	NiAl		48
Lucasson A	1	COMPT REND	245	1794	579024	E	9L 9S 4L 5B	NiCu	9	79
Lucasson A	1	ANN PHYSIQUE	5	509	609031	E	9A 9L	NiCu	09	100

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b. L-Spectra-Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Solomon J	2	APPL SPECTRY	25		719192	E	9L 9A	NiFe		40
Appleton A	2	PHIL MAG	16	1031	679278	E	9M	NiMg		67
							9L	NiMg		67
Curry C	1	SXS BANDSPECTRA		173	689333	E	9L 5D	NiMg	67	100
Norris P	3	BAND STRU SPECT		229	739009	E	9L	NiMg		
Bonnelle C	1	THESIS U PARIS			649057	E	9A 9L 9R	NiO		50
Fischer D	1	J APPL PHYS	36	2048	659063	E	9L 9S 9I 4L 5B	NiO		50
Bonnelle C	3	RONTGENCHEMBIND		20	669139	E	9E 9L	NiO		50
Menshikov A	3	PHYS STAT SOLID	35	89	699182	E	9K 5X 5B	NiO		50
							9L	NiO		50
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9L	NiO		40
Volkov V	2	PHYS METALMETAL	25	185	689196	E	9A 9L	NiSi	33	100
Volkov V	2	PHYS METALMETAL	26	193	689364	E	9L	NiTi	50	75
Holliday J	1	NBS IMR SYMP		3	709117	E	9L	NiTi	33	67
Holliday J	1	J PHYS CHEM SOL	32	1825	719196	E	9L 4L	NiTi	33	75
Volkov V	2	PHYS METALMETAL	26	193	689364	E	9L	NiV	89	100
Curry C	1	SXS BANDSPECTRA		173	689333	R	9L 5D	NiZn	52	64
Merrill J	2	ANN PHYS	14	166	619057	E	9L 4A 9A	Np		
Das Gupta K	1	PHYS REV	80	281	509003	E	9L	O Al		
Wiech G	1	Z PHYSIK	193	490	669167	E	9L 0S 4L	O Al		40
Fomichev V	1	SOVPHYS SOLIDST	8	2312	679102	E	9A 9K 4L 5D 9R	O Al		40
Rumsh M	4	VESTNIKLEN UNIV	16	49	689371	E	9K 9A	O Al		40
							9L 9A	O Al		40
Nemoshkalen V	4	UKRAIN PHYS J	13	837	699109	R	9K 9L	O Al		40
Chun H	2	Z NATURFORSCH	24A	930	699133	R	9K 9L	O Al		40
Hayasi T	2	X RAY CONF KIEV		1	307	699286	E	9E 9L 3Q	O Al	40
Skinner H	3	PHIL MAG	45	1070	549020	E	9L 9T 5D	O Ca		50
Bonnelle C	1	THESIS U PARIS			649057	E	9A 9L 9R	O Co		43
Fischer D	1	J APPL PHYS	36	2048	659063	E	9L 9S 9I 4L 5B	O Co		43
Menshikov A	3	PHYS STAT SOLID	35	89	699182	E	9K 5X 5B	O Co		50
							9L	O Co		50
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9L	O Co		40
Skinner H	3	PHIL MAG	45	1070	549020	E	9L 9T 5D	O Cr		40
Bonnelle C	1	THESIS U PARIS			649057	E	9A 9L 9R	O Cr		100
Lukirskii A	2	BULLACADSCIUSSR	28	749	649144	E	9L 4A 9I	O Cr		40
Fischer D	1	J APPL PHYS	36	2048	659063	E	9L 9S 9I 4L 5B	O Cr		40
Nemoshkalen V	4	UKRAIN PHYS J	13	837	699109	E	9L	O Cr		40
							9A 9K	O Cr		40
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9L	O Cr		40
Hague C	2	MUNICH SYMP			739010	E	9L	O Cr		40
Fischer D	1	J PHYS CHEM SOL	32	2455	719147	E	9K 9A	O CrK		14
							9L 9A	O CrK		29
							9K 9A	O CrK		57
							9L 9A	O CrNa		14
								O CrNa		29
								O CrNa		57
Bonnelle C	1	COMPT REND	248	2324	599003	E	9L	O Cu	50	66
Fujimori K	1	SCI REP TOHOKU U	47	50	639123	E	9L 9S	O Cu		67
Bonnelle C	1	THESIS U PARIS			649057	E	9A 9L 9R	O Cu	50	67
Fischer D	1	J APPL PHYS	36	2048	659063	E	9L 9S 9I 4L 5B	O Cu	50	67
Bonnelle C	3	RONTGENCHEMBIND		20	669139	E	9E 9L	O Cu		50
							9E 9L	O Cu		67
Fischer D	2	TECH REPORT AD	807	479	669226	E	9L	O Cu	50	100
Bonnelle C	1	J PHYSIQUE COLL	28	65	679084	E	9A 9L	O Cu	50	67
Bonnelle C	1	SXS BANDSPECTRA		163	689332	E	9L 5D	O Cu		67
							9L 5B	O Cu		67

b. L-Spectra-Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Zyryanov V	2	PHYS METALMETAL	27	191	699116	E	9L 9S 0D	O Cu	50	67
Menshikov A	3	PHYS STAT SOLID	35	89	699182	E	9K 5X 5B	O Cu		50
							9L	O Cu		50
Akopdzhano R	1	SOVPHYS SOLIDST	12	1095	709228	E	9A 9K 9S 5B	O Cu		67
							9L 5B	O Cu		67
Ribble T	1	PHYS STAT SOLID	6A	473	719074	E	9L 9R 9S	O Cu	50	67
Sakellari P	1	J PHYS RADIUM	16	271	559019	E	9L 9S 5B 5D	O Eu		40
Skinner H	3	PHIL MAG	45	1070	549020	E	9L 9T 5D	O Fe		50
Das Gupta K	1	TECH REPORT AD	412	791	639088	E	9L 5B	O Fe		43
Bonnelle C	1	THESIS U PARIS			649057	E	9A 9L 9R	O Fe		43
Fischer D	1	J APPL PHYS	36	2048	659063	E	9L 9S 9I 4L 5B	O Fe	40	43
Fischer D	2	TECH REPORT AD	807	479	669226	E	9L	O Fe	40	50
Menshikov A	3	PHYS STAT SOLID	35	89	699182	E	9K 5X 5B	O Fe		50
							9L	O Fe		50
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9L	O Fe		40
Smith D	2	J PHYS	4D	147	719004	E	9L 9I 9R	O Fe		40
Koster A	1	PROC KONNEDACAD	74	332	719193	E	9L	O Fe	40	50
Hague C	2	MUNICH SYMP			739010	E	9L	O Fe		40
Sakellari P	1	J PHYS RADIUM	16	271	559019	E	9L 9S 5B 5D	O Gd		40
Borovikov G	2	BULLACADSCIUSSR	21	1426	579013	E	9L	O Ge		33
Sakellari P	1	J PHYS RADIUM	16	271	559019	E	9L 9S 5B 5D	O Ho		40
Koster A	1	PROC KONNEDACAD	74	332	719193	E	9L	O K Mn		17
Sarma A	2	J PHYS CHEM SOL	32	1423	719191	E	9L 9I	O La		40
Bos W	1	INTL MEET H MET			720574	E	9L	O La		40
Sarma A	2	J PHYS CHEM SOL	33	935	729039	E	9L 9I	O La		40
Das Gupta K	1	PHYS REV	80	281	509003	E	9L	O Mg		
Fomichev V	3	SOVPHYS SOLIDST	10	2421	689249	E	9A 9L 5B	O Mg		50
Neddermey H	1	THESIS MUNCHEN			699355	E	9L 0I	O Mg		50
Skinner H	3	PHIL MAG	45	1070	549020	E	9L 9T 5D	O Mn		33
Fischer D	1	J APPL PHYS	36	2048	659063	E	9L 9S 9I 4L 5B	O Mn		33
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9L	O Mn		40
Koster A	1	PROC KONNEDACAD	74	332	719193	E	9L	O Mn	33	50
Barinskii R	2	BULLACADSCIUSSR	21	1375	579004	E	9A 9L	O Mo		25
							9A 9L	O Mo		33
Nemnonov S	4	PHYS METALMETAL	28	192	699071	E	9L 9S	O N		50
Bonnelle C	1	THESIS U PARIS			649057	E	9A 9L 9R	O Ni		50
Fischer D	1	J APPL PHYS	36	2048	659063	E	9L 9S 9I 4L 5B	O Ni		50
Bonnelle C	3	RONTGENCHEMBIND			669139	E	9E 9L	O Ni		50
Menshikov A	3	PHYS STAT SOLID	35	89	699182	E	9K 5X 5B	O Ni		50
							9L	O Ni		50
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9L	O Ni		40
Cauchois Y	1	COMPT REND	239	1780	549006	E	9L	O Pu		67
O Bryan H	2	PROC ROY SOC	176A	229	409003	E	9L 5B 4L 00	O Si		50
Das Gupta K	1	PHYS REV	80	281	509003	E	9L	O Si		
Henke B	2	J APPL PHYS	37	922	669013	E	9L 9G 4L	O Si		67
Wiech G	1	Z PHYSIK	207	428	679261	E	9L 9I 5B 5D	O Si		67
Wiech G	1	SXS BANDSPECTRA			689325	E	9L 5D 5B	O Si	00	67
							9K 5D 5B	O Si	00	67
Urch D	1	J PHYS	3C	1275	709220	T	9S 9K 9L 9I 4L	O Si		80
Hayasi Y	2	INTCONF VUVPHYS	3		719173	E	9L	O Si	50	67
Gokhale B	2	J PHYS	2B	282	669007	F	9L 9Q	O Sm	00	60
Gokhale B	2	J PHYS	2B	282	669007	E	9L 9Q	O Sm		60
Nemnonov S	5	TRANSMETSOCAIME	245	1191	699104	R	9K 9A 9L 5D 3Q	O T		
Sakellari P	1	J PHYS RADIUM	16	271	559019	E	9L 9S 5B 5D	O Tb		60
Deodhar G	3	CAN J PHYS	47	341	699026	E	9E 9L	O Tb		64
Deodhar G	2	PROC PHYS SOC	81	367	639106	E	9L	O Th		

b. L-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Skinner H	3	PHIL MAG	45	1070	549020	E	9L 9T 5D	O Ti		67
Lukirskii A	2	BULLACADSCIUSSR	28	749	649144	E	9L 4A 9I	O Ti		67 (1)
Holliday J	1	RONTGENCHEMBIND		139	669203	E	9L 9I 4L	O Ti	47	66
Holliday J	1	ADV XRAY ANALYS	9	365	669246	E	9L 4L	O Ti	47	66
Nemnonov S	1	PHYS METALMETAL	24	66	679213	R	9K 9L	O Ti		50
Holliday J	1	J APPL PHYS	38	4720	679258	E	9L	O Ti	50	60
Holliday J	1	NORELCO REPORTR	14	84	679388	R	9L	O Ti	20	66
							9K	O Ti	20	66
Brytov I	3	SOVPHYS SOLIDST	10	621	689041	E	9K 9I 9S 3Q	O Ti	48	54
							9L 9I 9S 3Q	O Ti	48	54
Fischer D	2	J APPL PHYS	39	4757	689262	E	9A 9L	O Ti	33	67
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9L 5D	O Ti	25	50
Menshikov A	3	PHYS STAT SOLID	35	89	699182	E	9K 5X 5B	O Ti		50
							9L	O Ti		50
Fischer D	1	J APPL PHYS	41	3922	709186	R	9K 5B	O Ti		50
							9L 9A 5B	O Ti		50
Fischer D	1	TECH REPORT AD	713	100	709312	R	9A 9L	O Ti	50	67
Holliday J	1	ADV XRAY ANALYS	13	136	709349	E	9L 9R	O Ti		50
							9L 4L	O Ti	0	66
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9A 9L	O Ti	33	67
Fischer D	1	PHYS REV	5	4219	729040	E	9A 9L	O Ti		67
							9A 9L	O Ti		67
Sakellari P	1	J PHYS RADIUM	16	271	559019	E	9L 9S 5B 5D	O Tm		60
Fischer D	1	J APPL PHYS	36	2048	659063	E	9L 9S 9I 4L 5B	O V		71
Holliday J	1	J APPL PHYS	38	4720	679258	E	9L	O V	00	60
Brytov I	3	PHYS METALMETAL	26	178	689363	E	9L 5B	O V		50
Menshikov A	3	PHYS STAT SOLID	35	89	699182	E	9K 5X 5B	O V		50
							9L	O V		50
Fischer D	1	TECH REPORT AD	713	100	709312	R	9A 9L	O V	60	71
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9L	O V	60	71
Fischer D	1	APPL SPECTRY	25	263	719069	E	9L 9A	O V	60	71
Senemaud C	2	J PHYSIQUE	32S	193	719205	E	9L	O V	28	40
Hague C	2	MUNICH SYMP			739010	E	9L	O V		60
Fischer D	1	APPL SPECTRY	25	263	719069	E	9L 9A 00	O VNa		37
							9L 9A 00	O VNa		50
							9L 9A 00	O VNa		13
Sato M	1	SCI REP TOHOKUU	30	267	419000	T	9A 9L 9S	O Zn		
Fischer D	1	J APPL PHYS	36	2048	659063	E	9L 9S 9I 4L 5B	O Zn		50
Zryanov V	2	PHYS METALMETAL	27	191	699116	E	9L 9S 0D	O Zn		50
Hirsh F	1	PHYS REV	62	137	429001	E	9S 9I 9T 9L	Os		
Ferreira J	1	COMPT REND	241	1929	559007	E	9L 9S 9I	Os		
Merrill J	2	ANN PHYS	14	166	619057	E	9L 4A 9A	Os		
Skinner H	1	PHILTRANSROYSOC	239A	95	409005	E	9L 00	P		
Henke B	1	ADV XRAY ANALYS	9	430	669244	E	9L 0I	P		100
Fomichev V	3	J PHYS CHEM SOL	29	1025	689141	E	9L 6H 00	P		100
Wiech G	1	Z PHYSIK	216	472	689248	E	9L 9K 5B 4N 00	P		
Wiech G	1	X RAY CONF KIEV	2	25	699287	E	9L 00	P		
Wiech G	1	Z PHYSIK	216	472	689248	E	9L 9K 5B	P Al		50
Fomichev V	3	J PHYS CHEM SOL	29	1025	689141	E	9K 6H 6U	P B		50
							9L 6H 6U	P B		50
Wiech G	1	Z PHYSIK	216	472	689248	E	9L 9K 5B	P B		50
Rumsh M	4	VESTNIKLEN UNIV	16	49	689371	E	9K 9A	P B		50
							9L 9A	P B		50
Nemoshkalen V	2	SOVPHYS SOLIDST	12	46	709196	R	9L 9K 5D	P B		
Wiech G	1	Z PHYSIK	216	472	689248	E	9L 9K 5B	P Ca		50

(1) 1000 °C

b. L-Spectra-Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Henke B	1	ADV XRAY ANALYS	9	430	669244	E	9L 9K 5B	P In		50
Wiech G	1	X RAY CONF KIEV	2	25	699287	E	9L 00	P X		
Ferreira J	1	COMPT REND	241	1929	559007	E	9L 9S 9I	P X		
Goldberg M	1	J PHYS RADIUM	22	743	619032	E	9L 9I	Pb		
Fischer D	2	NORELCO REPORTR	14	92	679387	R	9L 00	Pb X		
Hirsh F	2	PHYS REV	44	955	339000	E	9G 9S 9L	Pd		
Randall C	1	PHYS REV	57	786	409004	E	9S 9L	Pd		
Bonnelle C	2	COMPT REND	245	2253	579010	E	9L 9A	Pd		
Mande C	1	ANN PHYSIQUE	5	1559	609036	E	9L 9S	Pd		100
							9K 9L	Pd		100
								Pd		
Bonnelle C	2	COMPT REND	253	95	619017	E	9L	Pd		
Noreland E	1	ARKIV FYSIK	26	341	649107	E	9E 9L 5B 5D 0D	Pd		
Noreland E	2	ARKIV FYSIK	26	161	649110	E	9L 9R 9S 0D 5B	Pd		
Nemoshkalenk V	2	RONTGENCHEMBIND	224	669212	E	9L 9I		Pd		100
Nemnonov S	2	PHYS METALMETAL	23	162	679103	E	9L 5D	Pd		
Nemoshkalenk V	2	SOVPHYS SOLIDST	9	268	679111	E	9L 9G 9I 5D	Pd		
Shveitser I	2	BULLACADSCIUSSR	31	962	679169	E	9E 9L 9D 5D	Pd		
Bonnelle C	1	SXS BANDSPECTRA	163	689332	E	9A 9L 5B 5D		Pd		
Nemoshkalenk V	2	PHYS LET	30A	44	699153	E	9L 4A 5B 5D	Pd		
Hedman J	9	PHYS SCRIPTA	4	195	719188	E	9L	PdAg		12
							9L	PdAg		71
							9L	PdAg		88
Nemnonov S	4	PHYS STAT SOLID	43	319	719055	E	9L	PdAl		75
Watson L	3	J PHYSIQUE	32S	325	719208	E	9L	PdAl	50	75
Watson L	1	BAND STRU SPECT	125	739003	R	9L 9S 5D		PdAl		50
Kapoor Q	3	BAND STRU SPECT	215	739008	E	9L		PdAl		
Mande C	1	ANN PHYSIQUE	5	1559	609036	E	9L 6P	PdAu	21	80
Hedman J	9	PHYS SCRIPTA	4	195	719188	E	9L	PdAu	45	86
							9L	PdCu		60
							9K	PdCu		60
Das Gupta K	1	APPL PHYS LET	6	104	659057	E	9L 9S 0Y	PdH		40
Hedman J	9	PHYS SCRIPTA	4	195	719188	E	9L	PdRh		40
Das Gupta K	1	APPL PHYS LET	6	104	659057	E	9L 9S 0Y	PdSi	0	100
Wiech G	2	BAND STRU SPECT	173	739007	E	9K 9L		PrAl		67
							9K 9L	PrSi		33
Hirsh F	1	PHYS REV	62	137	429001	E	9S 9I 9T 9M 9L	Pt		
Deodhar G	2	J SCI INDUS RES	98	263	509004	E	9L	Pt		
Deodhar G	2	J SCI INDUS RES	10B	260	519003	E	9L 9S	Pt		
Deodhar G	2	NATURE	169	889	529009	E	9L	Pt		
Ferreira J	1	COMPT REND	241	1929	559007	E	9L 9S 9I	Pt		
Nigam A	2	J SCI INDUS RES	198	111	609044	E	9L	Pt		
Goldberg M	1	J PHYS RADIUM	22	743	619032	E	9L 9I	Pt		
Merrill J	2	ANN PHYS	14	166	619057	E	9L 4A 9A	Pt		
Cauchois Y	2	COMPT REND	242	1433	569010	E	9G 9L	Pu		
Merrill J	2	PHYS REV	110	79	589017	E	9L	Pu		
Merrill J	2	ANN PHYS	14	166	619057	E	9L 4A 9A	Pu		
Cauchois Y	1	COMPT REND	239	1780	549006	E	9L	PuO		67
Blokhin S	2	PHYS METALMETAL	19	49	659073	T	9L 9A 4L	R		
Hirsh F	1	PHYS REV	62	137	429001	E	9S 9I 9T 9L	Re		
Ferreira J	1	COMPT REND	241	1929	559007	E	9L 9S 9I	Re		
Goldberg M	1	J PHYS RADIUM	22	743	619032	E	9L 9I	Re		
Merrill J	2	ANN PHYS	14	166	619057	E	9L 4A 9A	Re		
Gokhale B	2	INDIAN J PAPHYS	1	14	639101	E	9L 9Q	Re		
							9E 9L	Re		100

b. L-Spectra-Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Hirsh F	2	PHYS REV	44	955	339000	E	9C 9S 9L	<i>Rh</i>		
Randall C	1	PHYS REV	57	786	409004	E	9S 9L	<i>Rh</i>		
Nemoshkalen V	2	RONTGENCHEMBIND		224	669212	E	9L 9I	<i>Rh</i>		100
Nemoshkalen V	2	SOVPHYS SOLIDST	9	268	679111	E	9L 9C 9I 5D	<i>Rh</i>		
Shveitser I	2	BULLACADSCIUSSR	31	962	679169	E	9E 9L 9D 5D	<i>Rh</i>		
Ekstig B	1	ARKIV FYSIK	37	107	689138	E	9E 9L 9S 9R	<i>Rh</i>		
Nemoshkalen V	2	PHYS LET	30A	44	699153	E	9L 4A 5B 5D	<i>Rh</i>		
Hedman J	9	PHYS SCRIPTA	4	195	719188	E	9L	<i>RhPd</i>		40
Hirsh F	2	PHYS REV	44	955	339000	E	9C 9S 9L	<i>Ru</i>		
Randall C	1	PHYS REV	57	786	409004	E	9S 9L	<i>Ru</i>		
Nemoshkalen V	2	RONTGENCHEMBIND		224	669212	E	9L 9I	<i>Ru</i>		100
Nemoshkalen V	2	SOVPHYS SOLIDST	9	268	679111	E	9L 9C 9I 5D	<i>Ru</i>		
Shveitser I	2	BULLACADSCIUSSR	31	962	679169	E	9E 9L 9D 5D	<i>Ru</i>		
Nemoshkalen V	2	PHYS LET	30A	44	699153	E	9L 4A 5B 5D	<i>Ru</i>		
Skinner H	1	PHILTRANSROYSOC	239A	95	409005	E	9L	<i>S</i>		
Tomboulion D	1	PHYS REV	74	1887	489001	E	9S 9L	<i>S</i>		
Henke B	1	ADV XRAY ANALYS	9	430	669244	E	9L 0I	<i>S</i>		100
Meisel A	2	X RAY CONF KIEF	1	297	699285	E	9L 5B	<i>S</i>		
Wiech G	2	J PHYSIQUE	32S	201	719206	E	9R 9L	<i>S Cd</i>		50
Das Gupta K	1	TECH REPORT AD	412	791	639088	E	9L 5B	<i>S Fe</i>		50
Koster A	1	PROC KONNEDACAD	74	332	719193	E	9L	<i>S Fe</i>		50
Wiech G	2	J PHYSIQUE	32S	201	719206	E	9R 9L	<i>S Fe</i>		67
Barinskii R	2	BULLACADSCIUSSR	21	1375	579004	E	9A 9L	<i>S Mo</i>		25
							9A 9L	<i>S Mo</i>		33
Henke B	1	ADV XRAY ANALYS	9	430	669244	E	9L 00	<i>S X</i>		
Meisel A	2	X RAY CONF KIEF	1	297	699285	E	9L 4L 00 5B	<i>S X</i>		
Wiech G	2	J PHYSIQUE	32S	201	719206	E	9R 9L	<i>S Zn</i>		50
Randall C	1	PHYS REV	57	786	409004	E	9S 9L	<i>Sb</i>		
Noreland E	1	ARKIV FYSIK	26	341	649107	E	9E 9L 5B 5D 0D	<i>Sb</i>		
Noreland E	2	ARKIV FYSIK	26	161	649110	E	9L 9R 9S 0D 5B	<i>Sb</i>		
Nemoshkalen V	2	PHYS LET	30A	44	699153	E	9L 4A 5B 5D	<i>Sb</i>		
Wiech G	2	J PHYSIQUE	32S	201	719206	E	9R 9L	<i>SbAl</i>		50
Drahokoup J	3	CZECH J PHYS	18B	1034	689222	E	9K 9L 0X	<i>SbGe</i>		00
Hague C	2	MUNICH SYMP			739010	E	9L	<i>Sc</i>		100
Morlet J	1	BULLACADROYBELG	35	1059	499003	E	9K 9L 9S	<i>Se</i>		
Skinner H	1	PHILTRANSROYSOC	239A	95	409005	E	9L	<i>Si</i>		
Das Gupta K	1	PHYS REV	80	281	509003	E	9L	<i>Si</i>		
Das Gupta K	2	PHIL MAG	46	77	559006	E	9L 5B	<i>Si</i>		100
Bedo D	2	PHYS REV	104	590	569006	E	9A 9L	<i>Si</i>		
Crisp R	2	PHIL MAG	6	365	619025	E	9L	<i>Si</i>		
Crisp R	1	THESIS U W AUST		1	619046	E	9L 0I	<i>Si</i>		100
Henke B	2	J APPL PHYS	37	922	669013	E	9L 9C	<i>Si</i>		
Henke B	1	ADV XRAY ANALYS	9	430	665244	E	9L 0I	<i>Si</i>		100
Lyapin V	1	SOVPHYS SOLIDST	8	2851	679109	E	9L 9K 5B	<i>Si</i>		
Fomichev V	2	SOVPHYS SOLIDST	9	1441	679256	E	9S 9L	<i>Si</i>		
Wiech G	1	Z PHYSIK	207	428	679261	E	9L 9I 5B 5D	<i>Si</i>		
Ershov O	2	SOVPHYS SOLIDST	8	1699	679316	E	9A 9L 9S 6U 9B	<i>Si</i>		100
Rooke G	1	J PHYS	1C	776	689154	E	9L 9S 5P	<i>Si</i>		
Wiech G	1	SXS BANDSPECTRA		59	689325	E	9L 5D 5B	<i>Si</i>		
							9K 5D 5B	<i>Si</i>		
Curry C	1	SXS BANDSPECTRA		173	689333	E	9L 5D	<i>Si</i>		
Lyapin V	2	SOVPHYS SOLIDST	10	1879	699019	R	9L 4B 5B	<i>Si</i>		100
Nemnonov S	2	PHYS METALMETAL	28	68	699218	R	9K 9L 5D	<i>Si</i>		
Klima J	1	J PHYS	3C		709004	T	9K 9L 6T	<i>Si</i>		100
Wiech G	2	NBS IMR SYMP	3		709118	E	9L	<i>Si</i>		100

b. L-Spectra-Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Harrison R	1	PHIL MAG	22	131	709184	E	9L 5N	Si		100
Hayasi Y	2	INTCONF VUVPYHS	3		719173	E	9L	Si		100
Wiech G	2	J PHYSIQUE	32S	201	719206	E	9R 9L	Si		100
Das Gupta K	2	PHIL MAG	46	77	559006	E	9L 5B	SiAl	5	12
Das Gupta K	1	PHYS REV	80	281	509003	E	9L	SiC		
Wiech G	1	Z PHYSIK	207	428	679261	E	9L 9I 5B 5D	SiC		50
Zhukova I	4	SOVPHYS SOLIDST	10	1097	689258	E	9L 4N 6G 5B 5D	SiC		50
Wiech G	1	SXS BANDSPECTRA		59	689325	E	9L 5D 5B	SiC	00	50
							9K 5D 5B	SiC	00	50
Nemoshkalenk V	2	SOVPHYS SOLIDST	12	46	709196	R	9L 9K 5D	SiC		
Hayasi Y	2	INTCONF VUVPYHS	3		719173	E	9L	SiC		50
							9L	SiCa		50
Wiech G	2	J PHYSIQUE	32S	201	719206	E	9R 9L	SiCa	33	67
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	SiCa		33
							9K 9L	SiCe		33
Hayasi Y	2	INTCONF VUVPYHS	3		719173	E	9L	SiCo	33	67
							9L	SiCr		50
Curry C	1	SXS BANDSPECTRA		173	689333	E	9L 5D	SiCu		75
Harrison R	1	PHIL MAG	22	131	709184	E	9L 5N	SiCu	75	90
Das Gupta K	1	TECH REPORT AD	412	791	639088	E	9L 5B	SiFe	75	91
Hayasi Y	2	INTCONF VUVPYHS	3		719173	E	9L	SiFe		50
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	SiLa		33
Das Gupta K	2	PHIL MAG	46	77	559006	E	9L 5B	SiMg	10	50
Curry C	1	SXS BANDSPECTRA		173	689333	E	9L 5D	SiMg		67
Harrison R	1	PHIL MAG	22	131	709184	E	9L 5N	SiMg		67
Hayasi Y	2	INTCONF VUVPYHS	3		719173	E	9L	SiMg		67
							9L	SiMn		50
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	SiMo		33
Zhukova I	4	SOVPHYS SOLIDST	10	1097	689258	E	9L 6C 5B 5D 4L	SiN		57
							9K 6C 5B 5D 4L	SiN		57
Hayasi Y	2	INTCONF VUVPYHS	3		719173	E	9L	SiN		57
Volkov V	2	PHYS METALMETAL	25	185	689196	E	9A 9L	SiNi	33	100
O Bryan H	2	PROC ROY SOC	176A	229	409003	E	9L 5B 4L 00	SiO		50
Das Gupta K	1	PHYS REV	80	281	509003	E	9L	SiO		
Henke B	2	J APPL PHYS	37	922	669013	E	9L 9C 4L	SiO		67
Wiech G	1	Z PHYSIK	207	428	679261	E	9L 9I 5B 5D	SiO		67
Wiech G	1	SXS BANDSPECTRA		59	689325	E	9L 5D 5B	SiO	00	67
							9K 5D 5B	SiO	00	67
Urch D	1	J PHYS	3C	1275	709220	T	9S 9K 9L 9I 4L	SiO		80
Hayasi Y	2	INTCONF VUVPYHS	3		719173	E	9L	SiO	50	67
Das Gupta K	1	APPL PHYS LET	6	104	659057	E	9L 9S 0Y	SiPd	0	100
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	SiPr		33
Hayasi Y	2	INTCONF VUVPYHS	3		719173	E	9L	SiTi		67
Kurmaev E	2	PHYS STAT SOLID	43K	49	719056	R	9K 9L 5D	SiV		25
Hayasi Y	2	INTCONF VUVPYHS	3		719173	E	9L	SiV		67
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	SiW		67
Kranner H	1	PHYSIK VERHANDL	13	135	629105	E	9L 5B 4L	SiX		
Deodhar G	2	J SCI INDUS RES	15B	615	569014	E	9L	Sm		
Gokhale B	2	J PHYS	2B	282	669007	E	9L 9Q	SmO	00	60
Gokhale B	2	J PHYS	2B	282	669007	E	9L 9Q	SmO		60
Randall C	1	PHYS REV	57	786	409004	E	9S 9L	Sn		
Holliday J	1	J APPL PHYS	33	3259	629095	E	9L 9S	Sn		
Noreland E	1	ARKIV FYSIK	26	341	649107	E	9E 9L 5B 5D 0D	Sn		
Noreland E	2	ARKIV FYSIK	26	161	649110	E	9L 9R 9S 0D 5B	Sn		
Nemoshkalenk V	2	PHYS LET	30A	44	699153	E	9L 4A 5B 5D	Sn		

b. L-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Crisp R	1	THESIS U W AUST		1	619046	E	9L 0I	SnMg		67
Hague C	2	BAND STRU SPECT		251	739004	E	9L	SnNb		75
							9L	SnV		25
Nemnonov S	2	FIZ METAL METAL	21	211	669151	R	9A 5D 9L 9M	T		
Nemnonov S	5	TRANSMETSOCAIME	245	1191	699104	R	9K 9A 9L 5D 3Q	T B		67
							9K 9A 9L 5D 3Q	T C		
							9K 9A 9L 5D 3Q	T N		
							9K 9A 9L 5D 3Q	T O		
Hirsh F	1	PHYS REV	62	137	429001	E	9S 9I 9T 9L	Ta		
Ferreira J	1	COMPT REND	241	1929	559007	E	9L 9S 9I	Ta		
Goldberg M	1	J PHYS RADIUM	22	743	619032	E	9L 9I	Ta		
Gokhale B	2	INDIAN J PAPHYS	1	56	639091	E	9L 9Q	Ta		
							9L 9S	Ta		100
Ramqvist L.	5	J PHYS CHEM SOL	32	149	719000	E	9L 3Q 4L	Ta C	49	50
								TaC	49	50
Sakellari P	1	COMPT REND	236	1767	539012	E	9A 9L	Tb		
Sakellari P	1	COMPT REND	236	1547	539013	E	9A 9L	Tb		
Sakellari P	1	J PHYS RADIUM	16	422	559020	E	9L 9F 9I 5B 6U	Tb		
Sakellari P	1	J PHYS RADIUM	16	271	559019	E	9L 9S 5B 5D	Tb O		60
Deodhar G	3	CAN J PHYS	47	341	699026	E	9E 9L	Tb O		64
Randall C	1	PHYS REV	57	786	409004	E	9S 9L	Te		
Noreland E	1	ARKIV FYSIK	26	341	649107	E	9E 9L 5B 5D 0D	Te		
Noreland E	2	ARKIV FYSIK	26	161	649110	E	9L 9R 9S 0D 5B	Te		
Ferreira J	1	COMPT REND	241	1929	559007	E	9L 9S 9I	Th		
Goldberg M	1	J PHYS RADIUM	22	743	619032	E	9L 9I	Th		
Deodhar G	2	PROC PHYS SOC	81	367	639106	E	9L	Tb O		
Skinner H	3	PHIL MAG	45	1070	549020	E	9L 9T 5D	Ti		
Lukirskii A	2	BULLACADSCIUSSR	28	749	649144	E	9L 4A 9I 6O	Ti		100 (1)
Holliday J	1	RONTGENCHEMBIND		139	669203	E	9L 9I 4L	Ti		100
Holliday J	1	ADV XRAY ANALYS	9	365	669246	E	9L	Ti		100
Nemnonov S	1	PHYS METALMETAL	24	66	679213	R	9K 9L	Ti		100
Holliday J	1	J APPL PHYS	38	4720	679258	E	9L	Ti		
Holliday J	1	NORELCO REPORTR	14	84	679388	R	9L	Ti		100
Nemoshkalen V	2	SOV PHYS DOKL	12	735	689006	E	9F 9K 9L	Ti		
Nemnonov S	2	PHYS METALMETAL	26	43	689236	R	9K 9L	Ti		100
Fischer D	2	J APPL PHYS	39	4757	689262	E	9A 9L	Ti		
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9L 5D	Ti		
Fischer D	1	TECH REPORT AD	713	100	709312	R	9A 9L	Ti		100
							9K 9A	Ti		100
Fischer D	1	PHYS REV	4B	1778	719106	R	9L 6G	Ti		100
Holliday J	1	J PHYS CHEM SOL	32	1825	719196	E	9L 4L	Ti		100
Hague C	2	MUNICH SYMP			739010	E	9L	Ti		100
Curry C	2	PHIL MAG	21	659	709016	E	9L 5B 5D 6T 5N	TiAl		75
Holliday J	1	RONTGENCHEMBIND		139	669203	E	9L 9I 4L	TiB		67
							9K 4L 4A	TiB		67
Holliday J	1	ADV XRAY ANALYS	9	365	669246	E	9L 4L	TiB		67
							9K 4L	TiB		67
Nemnonov S	1	PHYS METALMETAL	24	66	679213	R	9K 9L	TiB		67
Holliday J	1	NORELCO REPORTR	14	84	679388	E	9L	TiB		67
Fischer D	2	J APPL PHYS	39	4757	689262	E	9A 9L	TiB		67
Fischer D	1	TECH REPORT AD	713	100	709312	R	9A 9L	TiB		67
Holliday J	1	RONTGENCHEMBIND		139	669203	E	9L 9I 4L	TiC	45	50
							9K 4L 4A	TiC		50
Holliday J	1	ADV XRAY ANALYS	9	365	669246	E	9L 4L	TiC	45	49
							9K 4L	TiC	45	49

(1) 1000 °C

b. L-Spectra—Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Nemmonov S	1	PHYS METALMETAL	24	66	679213	R	9K 9L	TiC		50
Fischer D	2	J APPL PHYS	39	4757	689262	E	9A 9L	TiC		50
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9L 5D	TiC		50
							9K	TiC		50
Brytov I	3	PHYS METALMETAL	26	178	689363	E	9L 5B	TiC		50
Fischer D	1	J APPL PHYS	41	3922	709186	R	9K 5B	TiC		50
							9L 9A 5B	TiC		50
Fischer D	1	TECH REPORT AD	713	100	709312	R	9A 9L	TiC		50
Ramqvist L	5	J PHYS CHEM SOL	32	149	719006	R	9K 9L 3Q 5B	TiC		50
Holliday J	1	J PHYS CHEM SOL	32	1825	719196	E	9L 4L	TiC		49
Holliday J	1	NBS IMR SYMP	3		709117	E	9L	TiCo		50
Holliday J	1	J PHYS CHEM SOL	32	1825	719196	E	9L 4L	TiCo		50
Holliday J	1	NBS IMR SYMP	3		709117	E	9L	TiCr		50
Holliday J	1	J PHYS CHEM SOL	32	1825	719196	E	9L 4L	TiCr		67
							9L 4L	TiFe		50
Holliday J	1	RONTGENCHEMBIND		139	669203	E	9L 9L 4L	TiN		50
Nemmonov S	1	PHYS METALMETAL	24	66	679213	R	9K 9L	TiN		50
Brytov I	3	SOVPHYS SOLIDST	10	621	689041	E	9K 9L 9S 3Q	TiN		50
							9L 9L 9S 3Q	TiN		50
Fischer D	2	J APPL PHYS	39	4757	689262	E	9A 9L	TiN		50
Holliday J	1	NBS IMR SYMP	3		709117	E	9L	TiN	17	50
Fischer D	1	J APPL PHYS	41	3922	709186	R	9K 5B	TiN		50
							9L 9A 5B	TiN		50
Fischer D	1	TECH REPORT AD	713	100	709312	R	9A 9L	TiN		50
Ramqvist L	5	J PHYS CHEM SOL	32	149	719006	R	9K 9L 3Q 5B	TiN		50
Holliday J	1	J PHYS CHEM SOL	32	1825	719196	E	9L 4L	TiN	17	44
Volkov V	2	PHYS METALMETAL	26	193	689364	E	9L	TiNi	50	75
Holliday J	1	NBS IMR SYMP	3		709117	E	9L	TiNi	33	67
Holliday J	1	J PHYS CHEM SOL	32	1825	719196	E	9L 4L	TiNi	33	75
Skinner H	3	PHIL MAG	45	1070	549620	E	9L 9T 5D	TiO		67
Lukuski A	2	BULLACADCHESSIC	28	749	649144	E	9L 4A 9L	TiO		67
Holliday J	1	RONTGENCHEMBIND		139	669203	E	9L 9L 4L	TiO	47	66
Holliday J	1	ADV XRAY ANALYS	9	365	669246	E	9L 4L	TiO	47	66
Nemmonov S	1	PHYS METALMETAL	24	66	679213	R	9K 9L	TiO		50
Holliday J	1	J APPL PHYS	38	4720	679253	E	9L	TiO	50	60
Holliday J	1	NORLICO REPORTER	14	84	679338	R	9L	TiO	20	66
							9K	TiO	20	66
Brytov I	3	SOVPHYS SOLIDST	10	621	689041	E	9K 9L 9S 3Q	TiO	48	54
							9L 9L 9S 3Q	TiO	48	54
Fischer D	2	J APPL PHYS	39	4757	689262	E	9A 9L	TiO	33	67
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9L 5D	TiO	25	50
Menshikov A	3	PHYS STAT SOLID	35	39	699182	E	9K 5X 5B	TiO		50
							9L	TiO		50
Fischer D	1	J APPL PHYS	41	3922	709186	R	9K 5B	TiO		50
							9L 9A 5B	TiO		50
Fischer D	1	TECH REPORT AD	713	100	709312	R	9A 9L	TiO	50	67
Holliday J	1	ADV XRAY ANALYS	13	136	709349	E	9L 9R	TiO		50
							9L 4L	TiO	0	66
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9A 9L	TiO	33	67
Fischer D	1	PHYS REV	5	4219	729040	E	9A 9L	TiO		67
							9A 9L	TiO		67
Hayashi Y	2	INTCONF VUVPHYS	3		719173	E	9L	TiSi		67
Hush F	1	PHYS REV	62	137	429001	E	9S 9L 9T 9M 9L	Ti		
Ferreira J	1	COMPT REND	241	1929	559007	E	9L 9S 9L	Ti		
Goldberg M	1	J PHYS RADIUM	22	743	619032	E	9L 9L	Ti		

b. L-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Sakellari P	1	COMPT REND	236	1767	539012	E	9A 9L	<i>Tm</i>		
Sakellari P	1	COMPT REND	236	1244	539014	E	9A 9L	<i>Tm</i>		
Sakellari P	1	J PHYS RADIUM	16	422	559020	E	9L 9F 9I 5B 6U	<i>Tm</i>		
Nigam A	2	J PHYS	2B	419	699024	E	9L 9Q	<i>Tm</i>		
Sakellari P	1	J PHYS RADIUM	16	271	559019	E	9L 9S 5B 5D	<i>Tm O</i>		60
Rogosa G	2	PHYS REV	92	1434	539011	E	9K 9L	<i>U</i>		
Ferreira J	1	COMPT REND	241	1929	559007	E	9L 9S 9I	<i>U</i>		
Merrill J	2	PHYS REV	110	79	589017	E	9L	<i>U</i>		
Goldberg M	1	J PHYS RADIUM	22	743	619032	E	9L 9I	<i>U</i>		
Merrill J	2	ANN PHYS	14	166	619057	E	9L 4A 9A	<i>U</i>		
Skinner H	3	PHIL MAG	45	1070	549020	E	9L 9T 5D 9M	<i>V</i>		
Fischer D	1	J APPL PHYS	36	2048	659063	E	9L 9S 9I 4L 5B	<i>V</i>		
Holliday J	1	J APPL PHYS	38	4720	679258	E	9L	<i>V</i>		
Brytov I	1	PHYS METALMETAL	24	174	679328	E	9L 4A	<i>V</i>		
Nemoshkalen V	2	SOV PHYS DOKL	12	735	689006	E	9F 9K 9L	<i>V</i>		
Nemnonov S	2	PHYS METALMETAL	26	43	689236	R	9K 9L	<i>V</i>		100
Fischer D	1	J APPL PHYS	40	4151	699173	E	9L 9A 3Q 9R 9S	<i>V</i>		100
Zhurakovs E	3	INORGANIC MATLS	6	183	709306	E	9L	<i>V</i>		
Fischer D	1	TECH REPORT AD	713	100	709312	R	9A 9L	<i>V</i>		100
Zhurakovs E	8	SOV PHYS DOKL	15	877	719021	E	9L	<i>V</i>		
Fischer D	1	PHYS REV	4B	1778	719106	R	9L 6G	<i>V</i>		100
Senemaud C	2	J PHYSIQUE	32S	193	719205	E	9L	<i>V</i>		100
Hague C	2	BAND STRU SPECT		251	739004	E	9L	<i>V</i>		100
Hague C	2	MUNICH SYMP			739010	E	9L	<i>V</i>		100
Kapoor Q	3	BAND STRU SPECT		215	739008	E	9L	<i>V AI</i>		
Watson L	3	MUNICH SYMP			739014	E	9L	<i>V AI</i>	10	75
Fischer D	1	J APPL PHYS	40	4151	699173	E	9L 9A 3Q 9R 9S	<i>VB</i>		67
Fischer D	1	TECH REPORT AD	713	100	709312	R	9A 9L	<i>VB</i>		67
Senemaud C	2	J PHYSIQUE	32S	193	719205	E	9L	<i>VB</i>		33
Brytov I	3	PHYS METALMETAL	26	178	689363	E	9L 5B	<i>VC</i>		47
Fischer D	1	J APPL PHYS	40	4151	699173	E	9L 9A 3Q 9R 9S	<i>VC</i>		50
Zhurakovs E	3	INORGANIC MATLS	6	183	709306	E	9L 4A 1H 1B 1T	<i>VC</i>	27	48
							9K 4L	<i>V C</i>	27	48
Fischer D	1	TECH REPORT AD	713	100	709312	R	9A 9L	<i>VC</i>		50
Ramqvist L	5	J PHYS CHEM SOL	32	149	719000	E	9K 4L 9V 5V 3Q	<i>VC</i>	42	47
							9L 4L 9V 5V 3Q	<i>V C</i>	42	47
								<i>V C</i>	42	47
Zhurakovs E	8	SOV PHYS DOKL	15	877	719021	E	9L 4A 1H 4L	<i>VC</i>	28	47
							9K 4L	<i>V C</i>	28	47
Fischer D	1	J APPL PHYS	40	4151	699173	E	9L 9A 3Q 9R 9S	<i>VN</i>		50
Fischer D	1	TECH REPORT AD	713	100	709312	R	9A 9L	<i>VN</i>		50
Fischer D	1	APPL SPECTRY	25	263	719069	E	9L 9A 00	<i>VNaO</i>		37
							9L 9A 00	<i>VNaO</i>		50
							9L 9A 00	<i>VNaO</i>		13
Volkov V	2	PHYS METALMETAL	26	193	689364	E	9L	<i>V Ni</i>	89	100
Fischer D	1	J APPL PHYS	36	2048	659063	E	9L 9S 9I 4L 5B	<i>VO</i>		71
Holliday J	1	J APPL PHYS	38	4720	679258	E	9L	<i>VO</i>	00	60
Brytov I	3	PHYS METALMETAL	26	178	689363	E	9L 5B	<i>VO</i>		50
Menshikov A	3	PHYS STAT SOLID	35	89	699182	E	9K 5X 5B	<i>VO</i>		50
							9L	<i>VO</i>		50
Fischer D	1	TECH REPORT AD	713	100	709312	R	9A 9L	<i>VO</i>	60	71
Fischer D	1	ADV XRAY ANALYS	13	159	709350	R	9L	<i>VO</i>	60	71
Fischer D	1	APPL SPECTRY	25	263	719069	E	9L 9A	<i>VO</i>	60	71
Senemaud C	2	J PHYSIQUE	32S	193	719205	E	9L	<i>VO</i>	28	40
Hague C	2	MUNICH SYMP			739010	E	9L	<i>VO</i>		60

b. L-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Kurmaev E	2	PHYS STAT SOLID	43K	49	719056	R	9K 9L 5D	V Si		25
Hayasi Y	2	INTCONF VUVPHYS	3		719173	E	9L	V Si		67
Hague C	2	BAND STRU SPECT		251	739004	E	9L	V Sn		25
Sato M	1	SCI REP TOHOKUU	30	267	419000	T	9A 9L 9S	W		
Hirsh F	1	PHYS REV	62	137	429001	E	9S 9L 9T 9L	W		
Barrere G	1	COMPT REND	233	376	519001	E	9K 9L	W		
Ferreira J	1	COMPT REND	241	1929	559007	E	9L 9S 9I	W		
Goldberg M	1	J PHYS RADIUM	22	743	619032	E	9L 9I	W		
Meisel A	2	EXP TECH PHYSIK	9	258	619056	E	9L 4A	W		
Merrill J	2	ANN PHYS	14	166	619057	E	9L 4A 9A	W		
Wiech G	2	BAND STRU SPECT		173	739007	E	9K 9L	W Si		67
Blokhin M	2	BULLACADSCIUSSR	24	410	609057	T	9K 9L 9M 9T	X		
Kakushadze T	1	ANN PHYSIK	8	353	619044	T	9S 9K 9L 9M 5B	X		
Mizuno Y	2	J PHYS SOC JAP	25	627	689233	T	9A 9K 9L	X		
Bergersen B	2	X RAY CONF KIEV	2	162	699297	T	9E 9L	X		
Holliday J	1	TECH METALS RES	3	325	709345	R	9K 9L 9M 0I	X		
Fabian D	1	CRREV SOLST SCI	2	255	719070	R	9K 9L 9M	X		
Bergersen B	3	PHYS REV	5B	2385	729041	T	9A 9L	X		
Henke B	2	J APPL PHYS	37	922	669013	E	9L 9C 0O	X Cl		
Henke B	1	ADV XRAY ANALYS	9	430	669244	E	9L 0O	X Cl		
Gale B	1	PROC PHYS SOC	84	933	649114	E	9L 0D 6F 4A	X Mg		
Henke B	1	ADV XRAY ANALYS	9	430	669244	E	9L 0O	X P		
Wiech G	1	X RAY CONF KIEV	2	25	699287	E	9L 0O	X P		
Fischer D	2	NORELCO REPORTR	14	92	679387	R	9L 0O	X Pb		
Henke B	1	ADV XRAY ANALYS	9	430	669244	E	9L 0O	X S		
Meisel A	2	X RAY CONF KIEF	1	297	699285	E	9L 4L 0O 5B	X S		
Kranner H	1	PHYSIK VERHANDL	13	135	629105	E	9L 5B 4L	X Si		
Thompson B	2	DVP APPL SPECTRY	4	23	649156	R	9K 9L 9M	X X		
							9K 9L 9M	X X		
Lyapin V	2	SOVPHYS SOLIDST	10	1879	699019	T	9K 9L 4B 5B	X X		
							9K 9L 4B 5B	X X		
Randall C	1	PHYS REV	57	786	409004	E	9S 9L 0O	Xe		
Hirsh F	1	PHYS REV	62	137	429001	E	9S 9I 9T 9L	Yb		
Sato M	1	SCI REP TOHOKUU	30	267	419000	T	9A 9K 9L 9M 9S	Zn		
Korsunski M	2	ISLAKADNAUKSSR	3	249	589013	E	9L	Zn		
Rumyantse I	2	OPT SPECTR	7	498	599029	E	9L	Zn		
Lucasson A	1	ANN PHYSIQUE	5	509	609031	E	9A 9L	Zn		
Fischer D	1	J APPL PHYS	36	2048	659063	E	9L 9S 9I 4L 5B	Zn		
Chun H	2	Z NATURFORSCH	22A	1401	679324	E	9L	Zn		100
Liefeld R	1	SXS BANDSPECTRA		133	689330	E	9L 9A 9H 9R 9S	Zn		
Zyryanov V	2	PHYS METALMETAL	27	191	699116	E	9L 9S 0D	Zn		100
Nemnonov S	2	PHYS METALMETAL	29	141	709348	E	9A 9L	Zn		100
Neddermeyer H	1	MUNICH SYMP			739015	E	9L	Zn		
Fabian D	5	X RAY CONF KIEV	1	26	699280	E	9L 8U	ZnAl	75	100
Fabian D	3	NBS IMR SYMP	3		709114	E	9L	ZnAl		45
Watson L	3	MUNICH SYMP			739014	E	9L	ZnAl	45	90
Lucasson A	1	COMPT REND	245	1794	579024	E	9L 9S 4L 5B	ZnCu	20	80
Rumyantse I	2	OPT SPECTR	7	498	599029	E	9L	ZnCu		
Lucasson A	1	ANN PHYSIQUE	5	509	609031	E	9A 9L	ZnCu	20	100
Nemnonov S	2	PHYS METALMETAL	29	141	709348	E	9L	ZnCu		52
Neddermeyer H	1	MUNICH SYMP			739015	E	9K	ZnMg	33	90
							9L	ZnMg	33	90
Curry C	1	SXS BANDSPECTRA		173	689333	R	9L 5D	ZnNi	52	64
Sato M	1	SCI REP TOHOKUU	30	267	419000	T	9A 9L 9S	ZnO		
Fischer D	1	J APPL PHYS	36	2048	659063	E	9L 9S 9I 4L 5B	ZnO		50

b. L-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Zyryanov V	2	PHYS METALMETAL	27	191	699116	E	9L 9S 0D	ZnO		50
Wiech G	2	J PHYSIQUE	32S	201	719206	E	9R 9L	ZnS		50
Hirsh F	2	PHYS REV	44	955	339000	E	9G 9S 9L 9I	Zr		
Liefeld R	1	DISSERT ABSTR	20	4147	609030	E	9L 9S 5D 9A	Zr		
Nemoshkalenik V	2	SOVPHYS SOLIDST	9	268	679111	E	9L 9G 9I 5D	Zr		
Nemoshkalenik V	2	BULLACADSCIUSSR	31	999	679177	E	9L 5D	Zr		100
Nemoshkalenik V	2	PHYS LET	30A	44	699153	E	9L 4A 5B 5D	Zr		
Ramqvist L	5	J PHYS CHEM SOL	32	149	719000	E	9L	Zr		100
Curry C	2	PHIL MAG	21	659	709016	E	9L 5B 5D 6T 5N	ZrAl		67
Ramqvist L	5	J PHYS CHEM SOL	32	149	719000	E	9L 4L 9V 5V 3Q	ZrC		48

c. M-Spectra

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Parratt L	1	PHYS REV	50	598	369004	E	9S 9L 9M 9I 4A	Ag		
Lukirskii A	3	OPT SPECTR	16	372	649115	E	9M	Ag		
Hoffmann L	3	Z PHYSIK	229	131	699264	E	9M 9I 9R 0S 7D	Ag		
Shinoda G	1	X SEN	8	55	559023	E	9L 9M	AlCu		66
Appleton A	2	PHIL MAG	16	1031	679278	E	9M	AlFe	18	28
							9L	AlFe	18	28
Cuthill J	3	J APPL PHYS	39	2204	689098	E	9L	AlNi	0	100
							9M	AlNi	0	100
Cuthill J	4	SXS BANDSPECTRA		151	689331	R	9M 5D	AlNi	0	100
							9L 5D	AlNi	0	100
Kruglov V	2	SOVPHYS SOLIDST	10	170	689016	E	9M 9A	AsSe		40
Parratt L	1	PHYS REV	50	598	369004	E	9S 9L 9M 9I 4A	Au		
Hirsh F	1	PHYS REV	62	137	429001	E	9S 9I 9T 9M 9L	Au		
Hirsh F	1	PHYS REV	85	685	529016	E	9S 9M	Au		
Catterall J	2	PROC PHYS SOC	79	691	629090	E	9M 9S	AuCu		25
							9N 9S	AuCu		25
Hayasi T	2	SCI REP TOHOKUU	50	228	679151	E	9K 0I	B Zr		67
							9M 0I	B Zr		67
Hirsh F	1	PHYS REV	62	137	429001	E	9S 9I 9T 9M	Bi		
Hirsh F	1	PHYS REV	85	685	529016	E	9S 9M	Bi		
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9K	C Nb		50
							9M 5D	C Nb		50
Nemnonov S	4	PHYS METALMETAL	28	192	699071	R	9M	C Nb		46
Ramqvist L	5	J PHYS CHEM SOL	32	149	719000	R	9M	C Nb		50
Holliday J	1	J PHYS CHEM SOL	32	1825	719196	E	9M	C Nb		54
Ramqvist L	1	JERNKONT ANN	153	159	699176	E	9M	C Ti	41	50
Holliday J	1	ADV XRAY ANALYS	9	365	669246	E	9K 4L	C Zr		50
							9M	C Zr		50
Nemnonov S	4	PHYS METALMETAL	28	192	699071	R	9M	C Zr		50
Ramqvist L	5	J PHYS CHEM SOL	32	149	719000	R	9M	C Zr		50
Crisp R	1	THESIS U W AUST		1	619046	E	9M 0I	Ca		100
Lukirskii A	3	OPT SPECTR	16	372	649115	E	9M	Cd		
Fischer D	2	J APPL PHYS	38	4830	679260	E	9M 9R 9S	Ce		
Skinner H	3	PHIL MAG	45	1070	549020	E	9L 9T 5D 9M	Co		
Tomboulas D	2	PHYS REV	121	146	619081	E	9M	Co		
Fomichev V	3	SOVPHYS SOLIDST	13	1031	719054	E	9M 6P	Co		100
Catterall J	2	PROC PHYS SOC	81	1043	639090	E	9M	CoFe	10	100
Gyorgy E	2	PHYS REV	87	861	529014	E	9M	Cr		
Gyorgy E	1	TECH REPORT MIT	254	1	539006	E	9M	Cr		
Skinner H	3	PHIL MAG	45	1070	549020	E	9L 9T 5D 9M	Cr		
Agarwal B	2	PHYS REV	107	62	579000	E	9A 9M	Cr		

c. M-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Sommer G	4	PHYS METALMETAL	30	233	709353	T	9L 9M 9A	Cr		100
Fomichev V	3	SOVPHYS SOLIDST	13	1031	719054	F	9M 6P	Cr		100
Fischer D	1	PHYS REV	4B	1778	719106	R	9K 9M 6C 5B 9A	Cr		100
Gyorgy E	2	PHYS REV	87	861	529014	E	9M	Cu		
Gyorgy E	1	TECH REPORT MIT	254	1	539006	E	9M	Cu		
Shinoda G	3	PHYS REV	95	840	549019	E	9M	Cu		
Skinner H	3	PHIL MAG	45	1070	549020	E	9L 9T 5D 9M 9A	Cu		
Shinoda G	1	X SEN	8	55	559023	E	9L 9M	Cu		
Bedo D	2	PHYS REV	113	464	599002	E	9M	Cu		
Curry C	2	PROC PHYS SOC	76	791	609002	E	9M 5B 5D	Cu		
Crisp R	1	THESIS U W AUST		1	619046	E	9M 01	Cu		100
Catterall J	2	PROC PHYS SOC	79	691	629090	E	9M 9S	Cu		100
Tomhouliau D	1	J QUAN SPECT RT	2	649	629122	R	9M 9S	Cu		
Clift J	3	PHIL MAG	8	639	639083	E	9M 9S	Cu		100
Thompson B	1	APPL SPECTR	17	137	639098	E	9M	Cu		
Appleton A	1	CONTEMP PHYS	6	50	649132	R	9M 5D	Cu		
Goodings D	2	J PHYS C	2	1808	699161	T	9L 9M 5D 5B	Cu		
Doblyn R	4	PHYS REV	2B	1563	709080	E	9M 6T 0D	Cu		100 (1)
Fomichev V	3	SOVPHYS SOLIDST	13	1031	719054	E	9M 6P	Cu		100
Shinoda G	1	X SEN	8	55	559023	E	9L 9M	Cu Al		66
Catterall J	2	PROC PHYS SOC	79	691	629090	E	9M 9S	Cu Au		25
							9N 9S	Cu Au		25
Clift J	3	PHIL MAG	8	593	639082	E	9M 9S	Cu Ni	10	100
							9M 9S	Cu Ni	00	90
Thompson B	1	APPL SPECTR	17	137	639098	E	9M	Cu Ni		
Clift J	3	PHIL MAG	8	639	639083	E	9M 9S	Cu Zn		70
Thompson B	1	APPL SPECTR	17	137	639098	E	9M	Cu Zn		70
							9M	Cu Zn		71
Curry C	1	SXS BANDSPECTRA		173	689333	E	9M 5D	Cu Zn		70
Fischer D	2	J APPL PHYS	38	4830	679260	E	9M 9R 9S	Dy		
Fischer D	2	NORELCO REPORTR	14	92	679387	R	9M 9R	Dy		100
Bonnelle C	2	J PHYSIQUE	32S	230	719207	E	9M 9A	Dy		100
Fischer D	2	J APPL PHYS	38	4830	679260	E	9M 9R 9S	Er		
Bonnelle C	2	COMPT REND	268	494	699008	E	9A 9M 9R 9S	Eu		
Bonnelle C	2	J PHYSIQUE	32S	230	719207	E	9M 9A	Eu		100
Hague C	2	MUNICH SYMP			739010	E	9M	Eu		100
Fischer D	2	J APPL PHYS	38	4830	679260	E	9M 9R 9S	Eu O		
Bonnelle C	2	J PHYSIQUE	32S	230	719207	E	9M 9A	Eu O		40
Gyorgy E	1	TECH REPORT MIT	254	1	539006	E	9M	Fe		
Gyorgy E	2	PHYS REV	93	365	549010	E	9M	Fe		
Skinner H	3	PHIL MAG	45	1070	549020	E	9L 9T 5D 9M	Fe		
Shinoda G	1	X SEN	8	55	559023	E	9L 9M	Fe		
Tomhouliau D	2	PHYS REV	121	146	619081	E	9M	Fe		
Tomhouliau D	1	J QUAN SPECT RT	2	649	629122	R	9M 9S	Fe		
Catterall J	2	PROC PHYS SOC	81	1043	639090	E	9M	Fe		100
Fomichev V	3	SOVPHYS SOLIDST	13	1031	719054	E	9M 6P	Fe		100
Appleton A	2	PHIL MAG	16	1031	679278	E	9M	Fe Al	18	28
							9L	Fe Al	18	28
Catterall J	2	PROC PHYS SOC	81	1043	639090	E	9M	Fe Co	10	100
Fischer D	2	J APPL PHYS	38	4830	679260	E	9M 9R 9S	Gd		
Bonnelle C	1	SXS BANDSPECTRA		163	689332	E	9M 9A	Gd		
Cauchois Y	4	X RAY CONF KIEV	1	43	699281	R	9A 9M	Gd		
Bonnelle C	2	J PHYSIQUE	32S	230	719207	E	9M 9A	Gd		100
Hague C	2	MUNICH SYMP			739010	E	9M	Gd		100
Bonnelle C	2	J PHYSIQUE	32S	230	719207	E	9M 9A	Gd O		40
Bedo D	2	PHYS REV	104	590	569006	E	9A 9M	Ge		

(1) 580 °C

c. M-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Klima J	1	J PHYS	3C		709004	T	9K 9L 9M 6T	Ge		100
Fomichev V	2	SOVPHYS SOLIDST	12	2121	719044	E	9A 9M 0X 0Y	Ge		100
							9K 9M 5D	Ge		100
							9M	GeO		33
Fischer D	2	J APPL PHYS	38	4830	679260	E	9M 9R 9S	Ho		
Hirsh F	1	PHYS REV	62	137	429001	E	9S 9I 9T 9M 9L	Ir		
Crisp R	1	PHIL MAG	5	1161	609014	E	9L 9M	K		
Crisp R	1	THESIS U W AUST		1	619046	E	9M 0I	K		100
Mc Mullen T	1	J PHYS	3C	2178	709123	T	9M 9I 6T 5B	K		
Fischer D	2	J APPL PHYS	38	4830	679260	E	9M 9R 9S	La		
							9M 9R 9S	Lu		
Appleton A	2	PHIL MAG	16	1031	679278	E	9M	MgNi		67
							9L	MgNi		67
Gyorgy E	1	TECH REPORT MIT	254	1	539006	E	9M	Mn		
Gyorgy E	2	PHYS REV	93	365	549010	E	9M	Mn		
Skinner H	3	PHIL MAG	45	1070	549020	E	9L 9T 5D 9M	Mn		
Shinoda G	1	X SEN	8	55	559023	E	9L 9M	Mn		
Fomichev V	3	SOVPHYS SOLIDST	13	1031	719054	E	9M 6P	Mn		100
Rogers J	2	PROC PHYS SOC	67B	348	549016	E	9M 9N 4A	Mo		
Holliday J	1	BULL AM PHYSSOC	6	284	619003	R	9M	Mo		
Holliday J	1	BULL AM PHYSSOC	8	248	639084	E	9M 6F 4A	Mo		
Lukirskii A	2	BULLACADSCIUSSR	27	339	639114	E	9M 9E 9S 0D 9T	Mo		
Zimkina T	3	BULLACADSCIUSSR	28	744	649155	R	9M	Mo		(1)
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9M 5D	Mo		
Zimkina T	3	BULLACADSCIUSSR	28	744	649155	E	9M	MoO		25
Bobin J	2	COMPT REND	252	1302	619016	E	9M	MoPu U		
								MoPu U		10
								MoPu U		
Zimkina T	3	BULLACADSCIUSSR	28	744	649155	E	9M	N Nb		12
Holliday J	1	BULL AM PHYSSOC	6	284	619003	R	9M	Nb		
Holliday J	1	PHIL MAG	6	801	619038	E	9M	Nb		
Holliday J	1	BULL AM PHYSSOC	8	248	639084	E	9M 6F 4A	Nb		
Lukirskii A	2	BULLACADSCIUSSR	27	339	639114	E	9M 9E 9S 0D 9T	Nb		
Zimkina T	3	BULLACADSCIUSSR	28	744	649155	R	9M	Nb		(1)
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9M 5D	Nb		
							9K	NbC		50
							9M 5D	NbC		50
Nemnonov S	4	PHYS METALMETAL	28	192	699071	R	9M	NbC		46
Ramqvist L	5	J PHYS CHEM SOL	32	149	719000	R	9M	NbC		50
Holliday J	1	J PHYS CHEM SOL	32	1825	719196	E	9M	NbC		54
Zimkina T	3	BULLACADSCIUSSR	28	744	649155	E	9M	NbN		12
							9M	NbO		29
Fischer D	2	J APPL PHYS	38	4830	679260	E	9M 9R 9S	Nd		
Gyorgy E	1	TECH REPORT MIT	254	1	539006	E	9M	Ni		
Gyorgy E	2	PHYS REV	93	365	549010	E	9M	Ni		
Skinner H	3	PHIL MAG	45	1070	549020	E	9L 9T 5D 9M 9A	Ni		
Shinoda G	1	X SEN	8	55	559023	E	9L 9M	Ni		
Curry C	2	PROC PHYS SOC	76	791	609002	E	9M 5B 5D	Ni		
Tomboulia D	2	PHYS REV	121	146	619081	E	9M	Ni		
Tomboulia D	1	J QUAN SPECT RT	2	649	629122	R	9M 9S	Ni		
Thompson B	1	APPL SPECTR	17	137	639098	E	9M	Ni		
Appleton A	1	CONTEMP PHYS	6	50	649132	R	9M 5D	Ni		
Cuthill J	3	PHYS REV LET	16	993	669150	E	9M 9U 6C	Ni		100 (2)
Cuthill J	4	PHYS REV	164	1006	679300	E	9M 9L 5D 9S	Ni		100
Cuthill J	4	SXS BANDSPECTRA		151	689331	R	9L 9M 5D 5W 6T	Ni		100 (2)
Curry C	1	SXS BANDSPECTRA		173	689333	E	9M 5D	Ni		

(1) Above 1000 °C (2) 960 °C

c. M-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Fomichev V	3	SOVPHYS SOLIDST	13	1031	719054	E	9M 6P	Ni		100
Cuthill J	3	J APPL PHYS	39	2204	689098	E	9L	NiAl	0	100
							9M	NiAl	0	100
Cuthill J	4	SXS BANDSPECTRA		151	689331	R	9M 5D	NiAl	0	100
							9L 5D	NiAl	0	100
Clift J	3	PHIL MAG	8	593	639082	E	9M 9S	NiCu	10	100
							9M 9S	NiCu	00	90
Thompson B	1	APPL SPECTR	17	137	639098	E	9M	NiCu		
Appleton A	2	PHIL MAG	16	1031	679278	E	9M	NiMg		67
							9L	NiMg		67
Cuthill J	3	J APPL PHYS	39	2204	689098	E	9M 8C 5D	NiTi		50
Cuthill J	4	SXS BANDSPECTRA		151	689331	R	9M 6T 5D	NiTi		50
Nagel D	3	MUNICH SYMP			739013	T	9M	NiTi		50
Appleton A	2	PHIL MAG	16	1031	679278	E	9M	NiZn	52	64
Fischer D	2	J APPL PHYS	38	4830	679260	E	9M 9R 9S	O Eu		
Bonnelles C	2	J PHYSIQUE	32S	230	719207	E	9M 9A	O Eu		40
							9M 9A	O Cd		40
Fomichev V	2	SOVPHYS SOLIDST	12	2121	719044	E	9M	O Ge		33
Zimkina T	3	BULLACADSCIUSSR	28	744	649155	E	9M	O Mo		25
							9M	O Nb		29
Fischer D	2	J APPL PHYS	38	4830	679260	E	9M 9R 9S	O Yb		
Zimkina T	3	BULLACADSCIUSSR	28	744	649155	E	9M	O Zr		67
Hirsh F	1	PHYS REV	62	137	429001	E	9S 9I 9T 9M	Pb		
Hirsh F	1	PHYS REV	85	685	529016	E	9S 9M	Pb		
Curry C	2	PROC PHYS SOC	76	791	609002	E	9N 9M 5B 5D	Pd		
Fischer D	2	J APPL PHYS	38	4830	679260	E	9M 9R 9S	Pr		
Hirsh F	1	PHYS REV	62	137	429001	E	9S 9I 9T 9M 9L	Pt		
Hirsh F	1	PHYS REV	85	685	529016	E	9S 9M	Pt		
Bobin J	2	COMPT REND	252	1302	619016	E	9M	Pu U Mo		
								Pu U Mo		10
								Pu U Mo		
Curry C	2	PROC PHYS SOC	76	791	609002	E	9N 9M 5B 5D	Rh		
Holliday J	1	BULL AM PHYSSOC	6	284	619003	R	9M	Ru		
Kruglov V	2	SOVPHYS SOLIDST	10	170	689016	E	9M 9A	SeAs		40
Fischer D	2	J APPL PHYS	38	4830	679260	E	9M 9R 9S	Sm		
Nemnonov S	2	FIZ METAL METAL	21	211	669151	R	9A 5D 9L 9M	T		
Fischer D	2	J APPL PHYS	38	4830	679260	E	9M 9R 9S	Tb		
Hirsh F	1	PHYS REV	62	137	429001	E	9S 9I 9T 9M	Th		
Hirsh F	1	PHYS REV	85	685	529016	E	9S 9M	Th		
Lukirskii A	3	SOVPHYS SOLIDST	8	72	669230	E	9M	Ti		100
Fomichev V	3	SOVPHYS SOLIDST	13	1031	719054	E	9M 6P	Ti		100
Ramqvist L	1	JERNKONT ANN	153	159	699176	E	9M	TiC	41	50
Cuthill J	3	J APPL PHYS	39	2204	689098	E	9M 8C 5D	TiNi		50
Cuthill J	4	SXS BANDSPECTRA		151	689331	R	9M 6T 5D	TiNi		50
Nagel D	3	MUNICH SYMP			739013	T	9M	TiNi		50
Hirsh F	1	PHYS REV	62	137	429001	E	9S 9I 9T 9M 9L	Tl		
Hirsh F	1	PHYS REV	85	685	529016	E	9S 9M	Tl		
Fischer D	2	J APPL PHYS	38	4830	679260	E	9M 9R 9S	Tm		
Hirsh F	1	PHYS REV	62	137	429001	E	9S 9I 9T 9M	U		
Hirsh F	1	PHYS REV	85	685	529016	E	9S 9M	U		
Bobin J	2	COMPT REND	252	1302	619016	E	9M	U MoPu		
								U MoPu		10
								U MoPu		
Skinner H	3	PHIL MAG	45	1070	549020	E	9L 9T 5D 9M	V		
Fomichev V	3	SOVPHYS SOLIDST	13	1031	719054	E	9M 6P	V		100
Rogers J	2	PROC PHYS SOC	67B	348	549016	E	9M 9N 4A	W		

c. M-Spectra - Continued

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Blokhin M	2	BULLACADSCIUSSR	24	410	609057	T	9K 9L 9M 9T	X		
Kakushadze T	1	ANN PHYSIK	8	353	619044	T	9S 9K 9L 9M 5B	X		
Holliday J	1	TECH METALS RES	3	325	709345	R	9K 9L 9M 0I	X		
Fabian D	1	CRREV SOLST SCI	2	255	719070	R	9K 9L 9M	X		
Thompson B	2	DVP APPL SPCTRY	4	23	649156	R	9K 9L 9M	X X		
							9K 9L 9M	X X		
Holliday J	1	BULL AM PHYSSOC	8	248	639084	E	9M 6F 4A	Y		
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9M 5D	Y		
Fischer D	2	J APPL PHYS	38	4830	679260	E	9M 9R 9S	Yb		
							9M 9R 9S	Yb O		
Sato M	1	SCI REP TOHOKUU	30	267	419000	T	9A 9K 9L 9M 9S	Zn		
Skinner H	3	PHIL MAG	45	1070	549020	E	9M 9A 5D	Zn		
Clift J	3	PHIL MAG	8	639	639083	E	9M 9S	Zn		100
Thompson B	1	APPL SPECTR	17	137	639098	E	9M	Zn		
Appleton A	1	CONTEMP PHYS	6	50	649132	R	9M 5D	Zn		
Curry C	1	SXS BANDSPECTRA		173	689333	E	9M 5D	Zn		
Clift J	3	PHIL MAG	8	639	639083	E	9M 9S	ZnCu		70
Thompson B	1	APPL SPECTR	17	137	639098	E	9M	ZnCu		70
							9M	ZnCu		71
Curry C	1	SXS BANDSPECTRA		173	689333	E	9M 5D	Zn Cu		70
Appleton A	2	PHIL MAG	16	1031	679278	E	9M	ZnNi	52	64
Holliday J	1	BULL AM PHYSSOC	6	284	619003	R	9M	Zr		
Holliday J	1	BULL AM PHYSSOC	8	248	639084	E	9M 6F 4A	Zr		
Zimkina T	3	BULLACADSCIUSSR	28	744	649155	E	9M 9S	Zr		100 (1)
Holliday J	1	SXS BANDSPECTRA		101	689329	E	9M 5D	Zr		
Hayasi T	2	SCI REP TOHOKUU	50	228	679151	E	9K 0I	ZrB		67
							9M 0I	ZrB		67
Holliday J	1	ADV XRAY ANALYS	9	365	669246	E	9K 4L	ZrC		50
							9M	ZrC		50
Nemnonov S	4	PHYS METALMETAL	28	192	699071	R	9M	ZrC		50
Ramqvist L	5	J PHYS CHEM SOL	32	149	719000	R	9M	ZrC		50
Zimkina T	3	BULLACADSCIUSSR	28	744	649155	E	9M	ZrO		67

(1) Above 1000 °C

Authors		Journal	Vol.	Page	Ref. Number	Type	Properties	Alloy	Composition	
First	No.								Low	High
Curry C	2	PROC PHYS SOC	76	791	609002	E	9N 5B 5D	Ag		
Mc Alister A	4	BAND STRU SPECT		191	739001	E	9N	AlAu	67	(1)
Catterall J	2	PROC PHYS SOC	79	691	629090	E	9N 9S	Au	100	
Mc Alister A	4	SOLIDSTATE COMM	9	1775	719034	E	9N 6L	Au	100	(2)
Rudnev A	4	SOVPHYS SOLIDST	13	1724	729002	E	9N 9O	Au	100	
							9N 9O	Au	100	
Fomichev V	3	SOVPHYS SOLIDST	13	2525	729046	E	9N	Au	100	
Mc Alister A	4	BAND STRU SPECT		191	739001	E	9N	AuAl	67	
Catterall J	2	PROC PHYS SOC	79	691	629090	E	9M 9S	AuCu	25	
							9N 9S	AuCu	25	
							9M 9S	CuAu	25	
							9N 9S	CuAu	25	
Rudnev A	4	SOVPHYS SOLIDST	13	1724	729002	E	9O	Hf	100	
							9N 9O	Ir	100	
							9N 9O	Ir	100	
							9O	Lu	100	
Rogers J	2	PROC PHYS SOC	67B	348	549016	E	9M 9N 4A	Mo		
Lukirskii A	3	SOVPHYS SOLIDST	8	72	669230	E	9N	Mo	100	
Rudnev A	3	SOVPHYS SOLIDST	13	2083	729047	E	9N 6P	Mo	100	
Lukirskii A	3	SOVPHYS SOLIDST	8	72	669230	E	9N	Nb	100	
Rudnev A	3	SOVPHYS SOLIDST	13	2083	729047	E	9N 6P	Nb	100	
Curry C	2	PROC PHYS SOC	76	791	609002	E	9N 9M 5B 5D	Pd		
Lukirskii A	3	SOVPHYS SOLIDST	8	72	669230	E	9N 6L	Pd	100	
Rudnev A	3	SOVPHYS SOLIDST	13	2083	729047	E	9N 6P	Pd	100	
Rudnev A	4	SOVPHYS SOLIDST	13	1724	729002	E	9N 9O	Pt	100	
							9N 9O	Pt	100	
Fomichev V	3	SOVPHYS SOLIDST	13	2525	729046	E	9N	Pt	100	
Hakkila E	2	SPECTROCHIMACTA	23B	97	679152	E	9N 9E	Pu	100	
Lukirskii A	3	SOVPHYS SOLIDST	8	72	669230	E	9O 6L	Re		
Curry C	2	PROC PHYS SOC	76	791	609002	E	9N 9M 5B 5D	Rh		
Rudnev A	3	SOVPHYS SOLIDST	13	2083	729047	E	9N 6P	Rh	100	
							9N 6P	Ru	100	
Lukirskii A	3	SOVPHYS SOLIDST	8	72	669230	E	9N 0O 6L	Sb	100	
							9O 6L	Ta	100	
Rudnev A	4	SOVPHYS SOLIDST	13	1724	729002	E	9N 9O	Ta	100	
							9N 9O	Ta	100	
Lukirskii A	3	SOVPHYS SOLIDST	8	72	669230	E	9N 0O 6L	Te		
Rogers J	2	PROC PHYS SOC	67B	348	549016	E	9M 9N 4A	W		
Lukirskii A	3	SOVPHYS SOLIDST	8	72	669230	E	9O 6L	W	100	
Rudnev A	4	SOVPHYS SOLIDST	13	1724	729002	E	9O	W	100	
Rudnev A	3	SOVPHYS SOLIDST	13	2083	729047	E	9N 6P	Y	100	
							9N 6P	Zr	100	

(1) 600 °C (2) 580 °C

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Zimkina, T.M.	<i>See Zhukova, I.I.</i>	(689258)
Zimkina, T.M.	<i>See Rumsh, M.A.</i>	(689371)
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Zopf, e.	<i>See Hoffmann, I.</i>	(699264)
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3.4. Spectra Chart

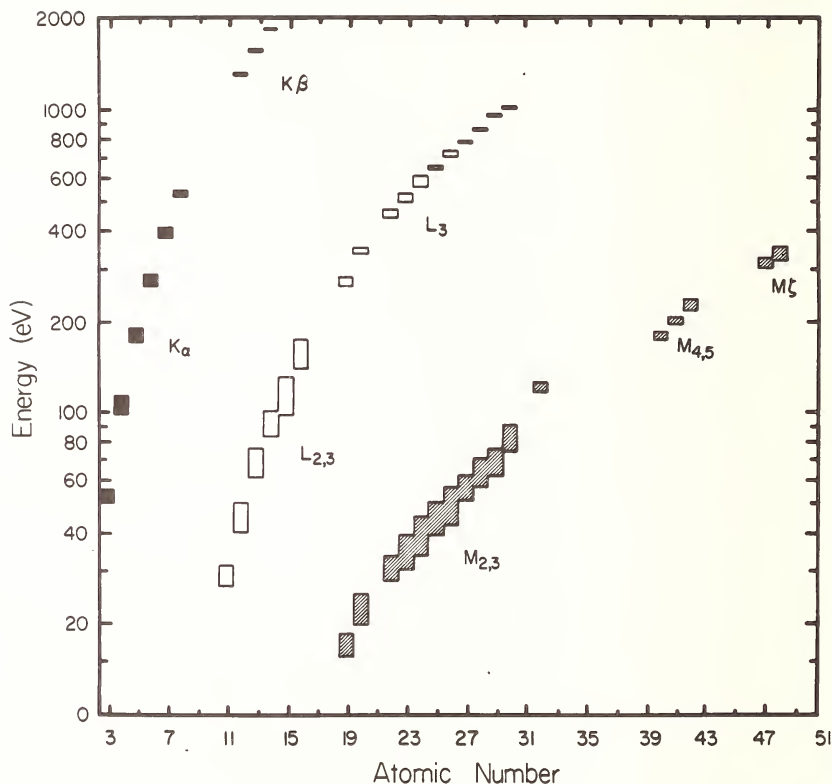


Figure 22. Chart showing the spectral location in eV of various spectra.

Bar height represents region within which approximately 90 percent of oscillator strength falls.

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Appendix 1

List of Properties by Categories

The code of the property is the category number followed by the alphabetic symbol at the left of the property. The deleted letters are open for future assignment. First we list the properties by increasing alphanumeric code number, and then alphabetically by property name.

Category 1

Electronic Transport Properties (ETP)

- A. Temperature coefficients of resistivity.
- B. Electrical resistivity; conductivity.
- C. Thermal conductivity; anharmonic force constants.
- D. Residual resistivity; mean free path; resistivity ratios.
- E. Effective number of charge carriers; number of electrons; number of holes.
- F. Ferromagnetic anisotropy of magnetoresistance. (Magnetoresistance, see Category 5.)
- H. Hall coefficients, R , R_0 ; R_s .
- I. Peltier coefficient, π .
- J. Ettingshausen-Nernst effect.
- K. Thompson coefficient.
- L. Lorentz number, Wiedemann-Franz ratio.
- M. Mobility; drift velocity.
- P. Ettingshausen coefficient, P .
- Q. Nernst coefficient, Q_N .
- S. Righi-Leduc coefficient, S .
- T. Thermoelectric power, Seebeck effect.

Category 2

Magnetic Properties (MAG)

- B. Electronic magnetic moment; effective number of Bohr magnetons; local moment; (including neutron diffraction results and moments of clusters). (See NEU.)[†]
- C. Curie constants.
- D. Néel point; Kondo Temperature; Morin transition; other magnetic transitions, etc. (except 2T. below).
- E. Residual inductance; coercive force.
- F. Remanent magnetization; saturation remanence; etc.
- G. $(HB)_{\max}$; hysteresis.
- H. Total energy loss; loss angle; eddy current losses; quality factor, Q .
- I. Saturation magnetization; saturation moment; intrinsic moment ($\neq 2B$).
- J. Magnetic exchange energy of electrons, J .
- K. Magnetostrictive coupling constant, K (both isotropic and anisotropic).

- L. Molecular field coefficient, Weiss constant.
- M. Magnetocrystalline anisotropy constant.
- N. Magnetocaloric or magnetothermal effect (oscillatory under 5K).
- O. Electrostrictive mechanical coupling coefficient; piezoelectric effect; magnetoelectric properties.
- P. Permeability: initial; effective; maximum; reversible.
- Q. Elastoresistance.
- R. Magnetomechanical damping; magnetoelastic effect; (magnetomechanical properties).
- T. Curie temperature: paramagnetic, ferromagnetic.
- X. Susceptibility (magnetization); antiferromagnetic susceptibility.

Ferromagnetic Kerr effect, see under 6M.

Category 3

Mechanics (MEC)

- A. Electron probability density, charge density; Pauling electronegativity, charge transfer.
- B. Stacking faults and other interfacial phenomena, such as grain boundary energies; properties of solidliquid interfaces; etc.
- C. Viscosity.
- D. Density.
- E. Acoustic and ultrasonic attenuation. (See ACO.)[†]
- F. Acoustic impedance. (See ACO.)[†]
- G. Elastic properties.
- H. Young's modulus (modulus of elasticity in tension or compression), E ; compressibility, β .
- I. Bulk modulus, K .
- J. Shear modulus, shearing modulus; torsion modulus; modulus of rigidity, G .
- K. Poisson's ratio, σ .
- L. Elastic constants, c_{ij} 's (elastic stiffness parameter, elastic coefficients); s_{ij} 's (elastic compliances).

[†] Single daggers in these categories refer the reader to List No. 3 for a variety of techniques and their abbreviations.

- N. Structure-sensitive properties (e.g., effect of dislocations, irradiation, etc. on physical properties).
- O. Lattice parameters, lattice constants, cell dimensions (including c/a ratios); space groups; superlattice formation; coordination number; crystal structures. (See XRA, NEU, etc.)[†]
- P. Lattice polarization. (See NPL OVR, etc.)[†]
- R. Phonon spectra.
- S. Spin wave spectra; spin wave energy, spin wave velocity; magnon spectra. (See SPW.)[†]
- U. Form factors; structure factors; scattering factors.
- V. Sound velocity.
- W. Electron-phonon interactions; Kohn anomalies.
- X. Thermomechanical properties.

Category 4

Nuclear and Other Resonance Properties

(NMR, EPR, etc.)

- A. Line width (for *all* spectroscopic techniques).
- B. Line shape; line intensity; enhancement factor recoilless fraction (f) (as in MOS).[†]
- C. Hyperfine field, internal field, effective field at the nucleus, etc. (no Knight shifts). (See for example THE, FNR or MOS.)[†]
- E. Electric field gradient at the nucleus; electric quadrupole coupling constant.
- F. Spin-lattice relaxation time, T_1 , longitudinal relaxation time, thermal relaxation time. (See NMR.)[†]
- G. Spin-spin relaxation time, T_2 , transverse relaxation time, spin-phase memory time. (See NMR.)[†]
- H. Nuclear g -factor; nuclear magnetic moment dipole, quadrupole, etc.).
- J. Spin echoes, pulsed NMR techniques.
- K. Knight shift. (See NMR.)
- L. Chemical shift, paramagnetic shift in non-metals. (See NMR.)[†] (This is not a metallic property, but is important in Knight shift data evaluations.)
- M. Spin diffusion.
- N. Isomer shift.
- O. Debye-Waller factor. (See MOS or XRA.)[†]
- P. Ferromagnetic shift. (See FER.)[†]
- Q. Electronic g -values and shifts; spectroscopic splitting factors.
- R. Nuclear coupling constants, $R-K$, A_{ij} , A_z ; hyperfine interaction constant; antishielding factors.
- T. Exchange stiffness parameter. (See FER.)[†]
- X. Scattering cross-sections (including electronic, spinflip, etc.)

Category 5

Quantum Description of Solids (QDS)

- A. Fermi velocity; Fermi momentum.
- B. Band structure.
- C. Cyclotron resonance frequency.
- D. Density of states.
- E. Effective mass, m^* (as determined by different methods).
- F. Fermi surface, Fermi energy surface dimensions.
- G. Anomalous skin effect; rf size effect, Gantmakher effect.
- H. de Haas-van Alphen effect; Oscillatory susceptibility effects in other properties (e.g. oscillatory Knight shifts (4K) are indexed 4K, 5H).
- I. Magnetoresistance (nonoscillatory).
- J. Magnetic breakdown; magnetic breakthrough.
- K. Shubnikov-de Haas effect (oscillatory magnetoresistance).
- L. Oscillatory magnetostriction; oscillatory magnetocaloric effect; other oscillatory effects not listed elsewhere.
- M. Magnetoacoustic effect, geometric resonance.
- N. Screening parameter, k_{FT} , α_{eq} ; charge oscillations, RKKY theory; virtual states.
- O. Volume per electron; radius per electron, r_s ; metallic radius.
- P. Pseudopotential, model potential.
- Q. Angular correlation or anisotropy of emitted γ rays (including POS).[†]
- R. Disordered alloys; breakdown of translational periodicity (when not otherwise noted).
- S. Madelung constant; cohesive energy; electrostatic interaction energy.
- T. Various quantum states; total electronic angular momentum, J , etc.
- U. Electronic transitions (excluding single-particle transitions, which are listed under 6T); semimetal-to-metal transitions; Mott transitions; energy gaps.
- V. Binding, or dissociation energies, including those for foreign particles, pairs, vacancies, etc.
- W. Wave functions of electrons in metals.
- X. Crystal field splitting; exchange interaction energies and splitting; other characteristic energies of electronic states.
- Y. Relaxation times, electronic or other; all except T_1 (4F) and T_2 (4G)—this code includes the cross-relaxation time, T_{12} .
- Z. Electron-like quasiparticles.

Category 6

Electromagnetic Radiation (RAD)

- A. Absorptivity.
- B. Emissivity (normal spectral).
- C. Transmission.

[†]Single daggers in these categories refer the reader to List No. 3 for a variety of techniques and their abbreviations.

- D. Reflectivity, percent reflectance of (polished) metal.
- E. Extinction coefficient $K(\lambda)$.
- F. Fermi edge energy, absorption and emission edge energy.
- G. Photoemission spectra. (See PES.)†
- H. Quantum yield.
- I. Index of refraction, $n(\lambda)$, optical and dielectric constants.
- J. Impedance; reactance (for acoustic impedance, see 3F).
- K. Photoconductivity.
- L. $L \cdot S$ splitting of energy levels. (See also 4Q.)
- M. Magneto-optical constants; magneto-optical rotation; Kerr effect (also ferromagnetic); magneto-reflectance; Faraday rotation; saturation rotation; Verdet constant.
- N. Extinction potential.
- O. Plasma oscillations and resonances.
- P. Peak energy. (See SXS.)†
- Q. Excitonic effects.
- S. Synchrotron radiation.
- T. Transition probability.
- U. Energy level.
- W. Work function; thermionic; photoelectric; contact potential.
- X. Piezooptical properties.

Note: for line width, see 4A; for line shape, see 4B.

Category 7

Superconductivity (SUP)

- A. a of $\left\{ \frac{C_{es}}{\gamma T_c} = a \exp \left(\frac{-bT_c}{T} \right) \right.$, where C_{es} is the electronic specific heat in the superconducting state and γ is the coefficient of the linear term of the specific heat in the normal state.
- B. b of $\left\{ \frac{C_{es}}{\gamma T_c} = a \exp \left(\frac{-bT_c}{T} \right) \right.$
- D. Skin depth, penetration depth.
- E. Energy gap for superconducting electrons; order parameter.
- F. Penetration depth of electron pairs, λ .
- G. Flux lines; flux flow; structure of flux lines.
- H. Critical field, H_c ; H_{c1} ; H_{c2} ; H_{c3} .
- J. Critical current, I_c .
- K. Landau-Ginzburg constant, K .
- M. Magnetization in superconductors.
- S. Superconducting state (to be used only when essential for clarity).
- T. Critical temperature, T_c .

†Single daggers in these categories refer the reader to List No. 3 for a variety of techniques and their abbreviations.

- V. Electron-electron interaction parameter, V (multiplied by the density of states = $N(E_F)V$).
- X. Coherence distance, ξ_0 , range of coherence, correlation length.

Category 8

Thermodynamics (THE)

- A. Heat capacity, specific heat, C_v , C_p .
- B. Nuclear hyperfine structure; spin specific heat (of ions in materials, etc.), nuclear specific heat.
- C. Electronic specific heat, γ , γ_{el} .
- D. Magnetic specific heat, including that due to magnetic clustering.
- E. Stark and other specific heats.
- F. Phase transformations and diagrams.
- G. Melting point.
- H. Boiling point.
- I. Latent heats.
- J. Entropy of mixing; heat of solution.
- K. Entropy (other); enthalpy, heat content; Gibbs free energy, Helmholtz free energy; etc.
- L. Cohesion energy (as measured thermodynamically).
- M. Solubility.
- N. Vapor pressure; evaporation; sublimation.
- O. Thermal expansion.
- P. Debye temperature.
- Q. Diffusion. (See DIF.)†
- R. Activation energy. (See DIF.)†
- S. Diffusion constant. (See DIF.)†
- T. Fermi-Dirac degeneracy temperature.
- U. Order-disorder; clustering.

Category 9

Soft X-ray Spectroscopy (SXS)

- A. Absorption spectra.
- B. Absorption coefficient.
- C. Characteristic energy losses of electrons.
- D. Isochromat spectra.
- E. Emission spectra (i.e., characteristic or band spectra).
- F. Fine structure.
- G. Fluorescence yield (spectra).
- H. Bremsstrahlung, continuous spectra.
- I. Intensity determinations, intensity ratios (when used together with 9S).
- K. K-spectra.
- L. L-spectra.
- M. M-spectra.
- N. N-spectra.
- O. O-spectra.
- P. P-spectra.
- Q. Higher multipolarity-, forbidden-, nondiagram-transitions (excluding satellites, 9S).
- R. Self-absorption effects.

- S. Satellites.
- T. Auger transition; level and lifetime broadening.
(Instrumental, or environmental broadening under OD).
- U. Ion neutralization spectra. (See INS.)[†]
- V. X-ray photoelectron spectroscopy, electron spectroscopy for chemical analysis (ESCA).
(See also PES and XPS.)[†]

Appendix 2

Journal Names and Abbreviations

Journal or Reference

Abbreviation

Acta Chemica Scandinavica
Acta Crystallographica
Acta Metallurgica
Acta Physica
Acta Physica Austriaca
Acta Physica Academiae Scientiarum Hungaricae
Acta Physica Polonica
Advances in High Pressure Research
Advances in the Physical Sciences (USSR)
Advances in Chemical Physics
Advances in Physics
Agardograph
Abstract Bulletin of the American Institute of Mining, Metallurgical, and Petroleum Engineers
Akusticheski Zhurnal (in Russian)
Aluminum
American Journal of Physics
Analytical Chemistry
Angewandte Chemie International
Annales de Physique
Annalen der Physik
Annales de Physique
Annual Review of Nuclear Science
Annual Review of Physical Chemistry
Applied Optics
Applied Physics Letters
Applied Scientific Research
Applied Spectroscopy
Archives des Sciences
Argonne National Laboratory—Metallurgy Division Annual Report
Arkiv for Fysik
Atomic and Electronic Structures of Metals (Book edited by J. J. Gilman and W. A. Tiller for the American Society for metals)
Australian Journal of Physics
Band Structure Spectroscopy of Metals and Alloys, D. J. Fabian and L. M. Watson, Eds., Academic Press, 1973
Bell System Technical Journal
Berichte—Bunsengesellschaft für Physikalische Chemie
Fluctuation, Relaxation, and Resonance in Magnetic Systems (Book edited by D. Ter Haar)
Boron—Synthesis, Structure, and Properties (Edited by J. A. Kohn, W. F. Nye, and G. K. Gaule)
British Journal of Applied Physics
Bulletin of the American Physical Society
Bulletin of the Institute of Theoretical Physics (in Russian)
Bulletin of the Israel Physical Society
Bulletin de l'Académie Polonaise des Sciences
Bulletin of the Academy of Science of the USSR
Bulletin de l'Institut International du Froid
Bulletin de la Société Française de Mineralogie et de Crystallographie
Cahiers de Physique
Proceedings of the Cairo Solid State Conference
Canadian Journal of Chemistry

ACTA CHEM SCAND
ACTA CRYST
ACTA MET
ACTA PHYS
ACTA PHYS AUSTR
ACTA PHYS HUNG
ACTA PHYS POLON
ADV HIGH PR RES
ADV PHYSSCIUSSR
ADVANC CHEM PHYS
ADVANC PHYS
AGARDOGRAPH
AIME ABSTR BULL
AKUST ZH USSR
ALUMINUM
AM J PHYS
ANAL CHEM
ANGEW CHEM INTL
ANN PHYS
ANN PHYSIK
ANN PHYSIQUE
ANNREV NUCL SCI
ANNREV PHYSICHEM
APPL OPT
APPL PHYS LET
APPL SCI RES
APPL SPECTRY
ARCH SCI
ARGONNE NL MDAR
ARKIV FYSIK
ASM BOOK GILMAN
AUSTRAL J PHYS
BAND STRU SPECT
BELL SYST TECHJ
BERBUN PHYSICHEM
BOOK D TER HAAR
BORON BOOK KOHN
BRITJ APPL PHYS
BULL AM PHYSSOC
BULL INSTHEPHYS
BULL ISRPHYSSOC
BULLACADPOLSCI
BULLACADSCIUSSR
BULLINSINFROID
BULLSOCFMINERAL
CAHIERS PHYS
CAIRO SOLSTOCONF
CAN J CHEM

Journal or Reference

Abbreviation

Canadian Journal of Physics
Canadian Metallurgical Quarterly
Československy Casopis Pro Fysiku
Chemical Engineering
Chemical Physics Letters
Chemical Reviews
Comments on Solid State Physics
Conference Proceedings from U.S. Department of Commerce, Office of Technical Services
Comptes Rendus de l'Académie des Sciences
Conference on Low Temperature Physics
Conference on the Electronic Structure of Alloys, held at the University of Sheffield
Conference on Magnetic Resonance in Metals
Conference on the Properties of Liquid Metals (abstracts of papers)
Contemporary Physics
Control Engineering
Cornell University Report
Cryogenics
Crystallography
Current Science
Czechoslovak Journal of Physics
Discussions of the Faraday Society
Dissertation Abstracts
Dopovidi Akademii Nauk Ukrains'koi RSR
Developments in the Structural Chemistry of Alloy Phases
Les Electrons Dans Les Metaux (Institut International de Physique Solvay, 1954)
Electronics and Power
Elektrotechnische Zeitschrift
Electronic Properties Information Center Data Sheet
Experimentelle Technik der Physik
Experientia
Fizika Metallov i Metallovedenie (in Russian)
Fizika Tverdogo Tela (in Russian)
Fortschritte der Physik
General Electric Company Report
Genshikaku Kenkyu
Helvetica Chimica Acta
Helvetica Physica Acta
Hyperfine Structure and Nuclear Radiations
Hungarian Academy of Sciences Report
Hyperfine Interactions (Book edited by A. J. Freeman and R. B. Frankel)
IBM Journal of Research and Development
Institute of Electrical and Electronics Engineers Transactions of Circuit Theory
Institute of Electrical and Electronics Engineers Transactions on Magnetics
Institute of Electrical and Electronics Engineers Transactions on Nuclear Science
Industrial Electronics
Industrial and Engineering Chemistry
Industrial Laboratory (USSR)
Indian Journal of Pure and Applied Physics
Indian Journal of Physics
Industrial Research
CAN J PHYS
CAN MET QUARTER
CESK CASOPISFYS
CHEM ENG
CHEM PHYS LET
CHEM REVS
COM SOL ST PHYS
COMM OTS CONF
COMPT REND
CONF LOW T PHYS
CONF USHEFFIELD
CONFMAGRESMETAL
CONFFPROP LIQMET
CONTEMP PHYS
CONTROL ENG
CORNELL UNIVREP
CRYOGENICS
CRYSTALLOGRAPHY
CURRENT SCI
CZECH J PHYS
DISC FARADAYSOC
DISSERT ABSTR
DOP ACADNAUKUKR
DVP ST CHEM ALL
ELECTDANSMETAUX
ELECTRON PWR
ELEKTROTECH Z
EPIC DATA SHEET
EXP TECH PHYSIK
EXPERIENTIA
FIZ METAL METAL
FIZ TVERD TELA
FORTSCHR PHYSIK
GENL ELECT REP
GENSHIKAK KENKU
HELV CHIM ACTA
HELV PHYS ACTA
HFS NUCL RAD
HUNGACADSCI REP
HYPERFINE INT
IBM J RES DEVP
IEE T CIRCTHEO
IEEE TRANS MAG
IEEETRANNUCSCI
IND ELECTRONICS
IND ENG CHEM
IND LAB
INDIAN J PAPHYS
INDIAN J PHYS
INDUSTRIAL RES

Journal Names and Abbreviations—Continued

Journal or Reference	Abbreviation	Journal or Reference	Abbreviation
Inorganic Chemistry	INORGANIC CHEM	Japanese Journal of Applied Physics	JAP J APPL PHYS
Inorganic Materials	INORGANIC MATLS	Journal of the Electrochemical Society	JELECTROCHEMSOC
Instruments and Control Systems	INSTR CONT SYST	Jernkontorets Annaler	JERNKONT ANN
Instruments and Experimental Techniques (USSR)	INSTR EXP TECH	JETP Letters	JETP LET
Instrument Practice	INSTR PRACT	Journal of Inorganic and Nuclear Chemistry	JINORG NUCLCHEM
Instrument Review	INSTR REV	Kristallografiya	KRIST
International Conference on Plutonium	INTL CONF PU	L'Effet Mossbauer (Book by A. Abragam)	L EFFET MOSSBAÜ
International Instrument Congress	INT INSTR CONG	Low Temperature Physics (Proceedings of an International Conference)	LT TEMP PHYS
International Journal of Quantum Chemistry	INT J QUANTCHEM	Low Temperature Physics (Edited by C. De Witt, B. Dreyfus, and P. G. De Gennes)	LT PHYS DE WITT
Colloque International du C.N.R.S. (held at Orsay)	INT COLLOQ ORSAY	Lubrication Engineering	LUB ENG
Colloque International du C.N.R.S. (held at Paris)	INT COLLOQ PARIS	Master's Thesis	M THESIS
International Conference on Quantum Electronics	INTCONF QUANTELE	Machine Design	MACHINE DESIGN
International Conference on Solid Compounds of Transition elements	INTCONF SOLCOMP	Machinery Lloyd	MACHINERY LLOYD
International Conference on the Electronic Properties of Metals at Low Temperatures (held at Geneva, New York)	INTCONFGENEVANY	Magnetism (Book Edited by G. T. Rado and H. Suhl)	MAGNETISM
International Conference on Low Temperature Physics and Chemistry	INTCONFLOWTPHYS	Magyar Fizikai Folyóirat	MAGY FIZ FOLYO
International Conference on Physics at Very Low Temperatures	INTCONFPHYSLOWT	Materials in Design Engineering	MAT DESIGN ENG
International Congress of Pure and Applied Chemistry	INTCONG PA CHEM	Measurement Techniques USSR	MEAS TECH USSR
Introduction to Magnetic Resonance (Book by A. Carrington and A. D. McLachlan)	INTRO MAG RES	Mémoires de l'Académie Royale de Belgique	MEMACADROYBELG
Proceedings of an International Symposium on Anisotropy in Single—Crystal Refractory Compounds (held at Dayton, Ohio)	INTSYMP REFCOMP	Metal Progress	METAL PROGRESS
Institute of Radio Engineers Transactions on Nuclear Science	IRETRANS NUCCSI	Metallography	METALLOGRAPHY
Instrument Society of America Transactions	ISA TRANS	Metals Technology	METALS TECH
Istituto Lombardo—Accademia di Scienze e Lettere (Rendiconti)	IST LOMBARDO	Metallic Solid Solutions (Proceedings of a Symposium on their Electronic and Atomic Structure)—Edited by J. Friedel and A. Guinier	METALSOLIDSOLNS
Izvestiya Akademii Nauk SSSR (in Russian)	ISV SSR NEORG	Mikrochemica Acta	MIKROCHIM ACTA
Izvestiya Vysshikh Uchebnykh Zavedenii	IZV VYS UCH ZAV	Molecular Physics	MOL PHYS
Journal of the American Ceramic Society	J AM CERAM SOC	Monatsberichte der Deutschen Akademie der Wissenschaften	MONATSBER DEUT
Journal of the American Chemical Society	J AM CHEM SOC	Monatshefte für Chemie	MONATSH CHEM
Journal of Applied Physics	J APPL PHYS	Mössbauer Effect Methodology	MOSS EFF METHOD
Journal of Chemical Education	J CHEM EDUC	X-Ray Spectra and Electronic Structure of Matter, A. Faessler, Ed., U. of Munich Press	MUNICH SYMP
Journal of Chemical and Engineering Data	J CHEM ENG DATA	National Aeronautics and Space Administration Technical Report	NASA TECH REP
Journal of Chemical Physics	J CHEM PHYS	Nature	NATURE
Journal de Chimie Physique	J CHIM PHYS	Naturwissenschaften	NATURWISSEN
Journal of Electronics and Control	J ELECTRON CONT	National Bureau of Standards, Institute for Materials Research Symposium	NBS IMR SYMP
Journal of Inorganic Chemistry USSR	J INORGCHEMUSSR	National Bureau of Standards Monograph	NBS MONOGRAPH
Journal of the Institute of Metals	J INST METALS	National Bureau of Standards Technical Note	NBS TECH NOTE
Journal of the Iron and Steel Institute	J IRONSTEELINST	National Bureau of Standards Technical News Bulletin	NBSTECHNEWSBULL
Journal of the Less—Common Metals	J LESS COM MET	Nederlandsche Tijdschrift voor Natuurkunde	NED TIJDS NAT
Journal of Materials Science	J MATL SCI	NMR and EPR Spectroscopy	NMR EPR SPECTRO
Journal of Metals	J METALS	Proceedings of the Nuclear Physics and Solid State Symposium (held at Kanpur)	NUCLPHYS KANPUR
Journal of Nuclear Materials	J NUCL MATL	Nuclear Physics Symposium (held at Madras)	NUCLPHYS MADRAS
Journal of the Optical Society of America	J OPT SOC AM	Nuclear Instruments and Methods	NUCL INSTR METH
Journal of Physics (The Physical Society, London)	J PHYS	Nuclear Physics	NUCL PHYS
Journal of Physical Chemistry	J PHYS CHEM	Nukleonika	NUKLEONIK
Journal of Physics and Chemistry of Solids	J PHYS CHEM SOL	Nuovo Cimento	NUOVO CIMENTO
Journal de Physique et le Radium	J PHYS RADIUM	Onde Electrique	ONDE ELECT
Journal of the Physical Society of Japan	J PHYS SOC JAP	Optica Acta	OPT ACTA
Journal of Physics	J PHYSICS	Optical Properties and Electronic Structure of Metals and Alloys, F. Abeles, Ed., North Holland, 1966	OPT PROP
Journal of Quantitative Spectroscopy and Radiative Transfer	J QUAN SPECT RT	Optics and Spectroscopy	OPT SPECTR
Journal of Research of the National Bureau of Standards	J RES NBS	Optics Communications	OPTICS COMM
Journal of Science of the Hiroshima University	J SCI HIROSH U	Optika i Spektroskopiya (in Russian)	OPTIK SPEKT
Journal of Scientific and Industrial Research	J SCI INDUS RES	Philosophical Magazine	PHIL MAG
Journal of Scientific Instruments	J SCI INSTR	Philips Research Reports	PHILIPS RES REP
Journal of Solid State Chemistry	J SOLID ST CHEM	Philips Technical Review	PHILIPS TECHREV
Journal of Structural Chemistry	J STRUCT CHEM	Philosophical Transactions of the Royal Society	PHILTRANSROYSOC
Journal of Physical Chemistry	J TECH PHYS	Physics and Chemistry of Glasses	PHYS CHEM GLASS
Journal of Vacuum Science and Technology	J VAC SCI TECH	Physics and Chemistry of Solids	PHYS CHEM SOLID
		Physik der Kondensierten Materie	PHYS KOND MATER

Journal Names and Abbreviations—Continued

Journal or Reference	Abbreviation	Journal or Reference	Abbreviation
Physics Letters	PHYS LET	Roentgenspektren und Chemische Bindung (Book published by the Karl Marx Universität, Leipzig, 1966)	RONTGENCHEMBIND
Physics of Metals and Metallography	PHYS METALMETAL	Russian Metallurgy	RUSS MET
Physics of the Solid State (Edited by Balakrishna, Krishnamoorti, and Ramachandra Rao)	PHYS SOLIDSTATE	Scientific American	SCI AMERICAN
Physical Review	PHYS REV	Science Progress	SCI PROG
Physical Review Letters	PHYS REV LET	Scientific Reports of Tohoku University	SCI REP TOHOKU
Physica Status Solidi	PHYS STAT SOLID	Science	SCIENCE
Physics Today	PHYS TODAY	Semiconductor Products and Solid State Technology	SCP SOL ST TECH
Physikalische Zeitschrift	PHYS Z	Semiconductors and Semimetals	SEMICONDESMET
Physica	PHYSICA	Solid State Communications	SOLIDSTATE COMM
Physique	PHYSICS	Solid State Physics	SOLIDSTATE PHYS
Physikalische Verhandlungen	PHYSIK VERHANDL	Solutions Metal—Ammoniac (Proceedings of the Colloque Weyl)—Edited by G. Lepoutre and M. J. Sienko	SOLNSMETALAMMON
Planseeberichte für Puivermetallurgie	PLANSEE PUL MET	Soviet Journal of Nuclear Physics	SOV J NUCL PHYS
Plansee Seminar	PLANSEE SEMINAR	Soviet Physics—Crystallography	SOV PHYS CRYST
Powder Metallurgy Bulletin	POWDER MET BULL	Soviet Physics—Doklady	SOV PHYS DOKL
Polymer	POLYMER	Soviet Physics—JETP	SOV PHYS JETP
Priloby i Tekhnika Eksperimenta (in Russian)	PRIB TEK EKSPER	Soviet Physics—Acoustics	SOVPHYS ACOUST
Princeton Applied Research Corporation Technical Note	PRINCETONAPRESS	Soviet Physics—Solid State	SOVPHYS SOLIDST
Private Communication (followed by the initials of the person in the Alloy Physics Section to whom the communication was addressed)	PRIVATECOMM XXX	Soviet Physics—Uspekhi	SOVPHYS USPEKHI
Proceedings of the Bristol Conference on Defects in Crystalline Solids	PROCBRISTOLCONF	Soviet Physics—Technical Physics	SOVPHYSTECHPHYS
Proceedings of the American Academy of Arts and Sciences	PROC AMACAD A S	Space/Aeronautics	SPACE AERONAUT
Proceedings of the Colloque Ampere	PROC COL AMPERE	Space Science Reviews	SPACE SCI REV
Proceedings of the Institute of Electrical and Electronic Engineers	PROC IEEE	Spectrochimica Acta	SPECTROCHIMACTA
Proceedings of the Indian Academy of Sciences	PROC INDACADSCI	Spectroscopy Symposium (held at Bombay)	SPECTSYM BOMBAY
Proceedings of Nottingham University Conference	PROC INTCONFMAG	Steel	SVS BANDSPECTRA
Proceedings of the International Conference on Magnetism	PROC INTCONFMAG	Soft X-ray Band Spectra and the Electronic Structure of Metals and Materials—Edited by D. J. Fabian, Academic Press, 1968	
Proceedings of the Enrico Fermi International School of Physics	PROC INTSCHPHYS	Technical Documentary Report	TECH DOC REP
Proceedings of the Japan Academy	PROC JAP ACAD	Technical Report—ASTIA Document (followed by its number)	TECH REPORT AD
Proceedings of the Koninklijke Nederlandse Academie	PROC KONNEDACAD	Technical Report—University of Denver Research Institute	TECH REPORT DRI
Proceedings of the Physical Society (London)	PROC PHYS SOC	Technical Report—Los Alamos Scientific Laboratory (followed by its number)	TECH REPORT LA
Proceedings of the Royal Society	PROC ROY SOC	Technical Report—Office of Naval Research (followed by its number)	TECH REPORT ONR
Proceedings of the Academy of Sciences of the USSR	PROCACADSCIUSSR	Technical Report (International Atomic Energy Agency)	TECH REPORTIAEA
Proceedings of the Bulgarian Academy of Sciences	PROCBULGACADSCI	Technical Report of the Institute for Solid State Physics (University of Tokyo)	TECH REPORTISSP
Proceedings of the National Academy of Sciences	PROCNATLACADSCI	Technical Report (Oak Ridge National Laboratory)	TECH REPORTORNL
Progress in Cryogenics	PROG CRYOGENICS	Technical Report of the Research Institute for Advanced Studies	TECH REPORTRIAS
Progress in Materials Science	PROG MATL SCI	Technical Report (University of California Radiation Laboratory)	TECH REPORTUCRL
Progress in Non-Destructive Testing	PROG ND TESTING	Technical Report—Air Force Materials Laboratory	TECHREP AFML TR
Progress in Physics	PROG PHYS	Technical Report (Deutsches Elektronen Synchrotron)	TECH REPORTDESY
Progress in Theoretical Physics	PROG THEO PHYS	Techniques of Vacuum Ultraviolet Spectroscopy, J. A. R. Samson, John Wiley & Sons, 1967	TECH VAC UV
Progress in Inorganic Chemistry	PROGINORGANICHEM	The Alkali Metals (Book published by the Chemical Society)	THEALKALIMETALS
Progress in Low Temperature Physics	PROGLOWTEMPPHYS	Theoretical and Experimental Chemistry	THEO EXP CHEM
Semi-annual Progress Report (Solid-State and Molecular Theory Group), Massachusetts Institute of Technology	PROGREP MIT SSG	Thesis (Doctoral)	THESIS
Platinum Metals Review	PT METALS REV	Technical Report of the Institute for Solid State Physics, Tokyo University	TOKYO U INSTSSP
Quarterly Reviews of the Chemical Society of London	QUARTREVCHESMOC	Transactions of the American Society for Metals	TRANS ASM
Radio Engineering and Electron Physics	RADIOENG E PHYS	Transactions of the Faraday Society	TRANS FARAD SOC
Rapport du Commissariat a l'Energie Atomique	RAPPORT CEA	Translation—ASTIA Document (followed by its number)	TRANSLATION AD
Proceedings of the Rare Earth Conference	RARE EARTH CONF	Transactions of the Metallurgical Society of the American Institute of Mining, Metallurgical, and Petroleum Engineers	TRANSMETSOCAIME
Report on Progress in Physics	REP PROG PHYS	Ukrains'kii Fizichnii Zhurnal (in Ukrainian)	UKR FIZ ZH
Report on the Meeting on Semiconductors (London, 1957)	REPMEETSEMICOND	Ukrainian Physics Journal	UKRAIN PHYS J
Resonance Paramagnetique Nucleaire (Book)	RES PARAMAG NUC	Union Carbide Metals Company	UNIONCARBMETALS
Resonance and Relaxation in Metals (Book)	RES RELAX METAL	Uspekhi Fizicheskikh Nauk (in Russian)	USP FIZ NAUK
Reviews of Modern Physics	REV MOD PHYS	Vacuum	VACUUM
Revue de Physique Appliquee (Supplement to J Phys Radium)	REV PHYSIQUE AP	Le Vide	VIDE
Revue Roumaine de Chimie	REV ROUM CHIM		
Review of Scientific Instruments	REV SCI INSTR		
Revue du Nickel	REVUE DU NICKEL		

Journal Names and Abbreviations—Continued

X Sen	X SEN	Zeitschrift für Physikalische Chemie	Z PHYS CHEMIE
Zeitschrift für Angewandte Physik	Z ANGEW PHYSIK	Zeitschrift für Physik	Z PHYSIK
Zeitschrift für Anorganische und Allgemeine Chemie	Z ANORGALL CHEM	Zavodskaja Laboratoriia (in Russian)	ZAVOD LAB
Zeitschrift für Instrumentenkunde	Z INSTR	Zhurnal Neorganicheskoi Khimii (in Russian)	ZH NEORGAN KHIM
Zeitschrift für Metalkunde	Z METALLKUNDE	Zhurnal Eksperimental'noi i Teoreticheskoi Fiziki (in Russian)	ZHEKSPERTEORFIZ
Zeitschrift für Naturforschung	Z NATURFORSCH		

Appendix 3. Special Materials Symbols

A Few Generalized Names for Groups of Materials.

Material codes which have proven to be useful for the inclusion in our files of review articles theoretical papers:

- | | |
|---|---|
| A — alkali metals. | R — rare earth metals. |
| G — garnet (marginal to our scope). | X — an element (metal or non-metal). This has |
| IG — iron garnet (marginal to our scope). | also used to designate complexes in salts, |
| T — transition metals. | together the descriptor, 00. |

These symbols were chosen so that they differed from those of the elements in the periodic table.

U.S. DEPT. OF COMM. BIBLIOGRAPHIC DATA SHEET		1. PUBLICATION OR REPORT NO. NBS SP-369	2. Gov't Accession No.	3. Recipient's Accession No.
4. TITLE AND SUBTITLE Soft X-Ray Emission Spectra of Metallic Solids: Critical Review of Selected Systems and Annotated Spectral Index			5. Publication Date January 1974	
			6. Performing Organization Code	
7. AUTHOR(S) A.J. McAlister, R.C. Dobbyn, J.R. Cuthill, and M.L. Williams			8. Performing Organization	
9. PERFORMING ORGANIZATION NAME AND ADDRESS NATIONAL BUREAU OF STANDARDS DEPARTMENT OF COMMERCE WASHINGTON, D.C. 20234			10. Project/Task/Work Unit No. 3120122, 3120124, 3120125	
			11. Contract/Grant No.	
12. Sponsoring Organization Name and Address Same as No. 9.			13. Type of Report & Period Covered Final	
			14. Sponsoring Agency Code	
15. SUPPLEMENTARY NOTES				
16. ABSTRACT (A 200-word or less factual summary of most significant information. If document includes a significant bibliography or literature survey, mention it here.) Theory and experimental practice in the field of soft x-ray emission from metallic solids are briefly reviewed, and measurements on a number of systems are critically evaluated and compared with the results of other techniques and theory, with a view to establishing the pertinence of the soft x-ray measurements and further indicating specific guidelines for enhancing their value. In addition, an exhaustive annotated index of measured spectra is provided.				
17. KEY WORDS (Alphabetical order, separated by semicolons) Alloys; critical review; emission spectra; intermetallic compounds; metals; soft x-ray; spectra.				
18. AVAILABILITY STATEMENT <input checked="" type="checkbox"/> UNLIMITED. <input type="checkbox"/> FOR OFFICIAL DISTRIBUTION. DO NOT RELEASE TO NTIS.			19. SECURITY CLASS (THIS REPORT) UNCLASSIFIED	21. NO. OF PAGES 176
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