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United States Department of Commerce  
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*NISTIR 5008*

# METROLOGY FOR ELECTROMAGNETIC TECHNOLOGY: A BIBLIOGRAPHY OF NIST PUBLICATIONS

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Edited by  
Annie J. Smith

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Edited by  
Annie J. Smith

Electromagnetic Technology Division  
Electronics and Electrical Engineering Laboratory  
National Institute of Standards and Technology  
Boulder, Colorado 80303-3328

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# **METROLOGY FOR ELECTROMAGNETIC TECHNOLOGY: A BIBLIOGRAPHY OF NIST PUBLICATIONS**

Annie J. Smith, Editor

This bibliography lists the publications of the personnel of the Electromagnetic Technology Division of NIST during the period from January 1970 through publication of this report. A few earlier references that are directly related to the present work of the Division are also included.

Key words: cryoelectronics; electromagnetic metrology; lasers; optical fibers; superconducting materials

## **INTRODUCTION**

R. A. Kamper

The Electromagnetic Technology Division was formed during the reorganization of the National Bureau of Standards (now the National Institute of Standards and Technology) in April 1978 by combining parts of the former Electromagnetics and Cryogenics Divisions. It develops measurement methods and standards and provides metrological support for laser systems, optical communication equipment, cryoelectronics, magnetics, superconductors, and other unusual electrical engineering materials. For the individual staff members of the division, the reorganization brought a realignment of long-term goals but little immediate discontinuity in their work. It therefore makes good sense that this bibliography should cover a period beginning some time before the reorganization, so as to include at least the more recent origins of the present work of the division. The editor has attempted to include all work published by staff members of the division, while they were employees of NIST, in the period from January 1970 through publication of this report. There are a few exceptions, where work that is totally unrelated to the present program has been excluded or where work by authors now in other parts of NIST has been included because of its special significance. A few papers on various topics published before 1970 have also been included because of their direct relationship to the present program.

Several other sources may be useful to the reader who is interested in activities at NIST connected with electromagnetic metrology. A companion bibliography to this one lists the publications of the Electromagnetic Fields Division: NISTIR 5009. Its topics include metrology for antennas, satellite communications equipment, microwave metrology, electromagnetic waveform metrology, electromagnetic interference, and hazard. An excellent summary of the whole field of electromagnetic metrology as it stood in 1967 was published as a special issue of the Proceedings of IEEE (vol. 55, June 1967). Advances in the following decade were described in two other special issues of the same journal (vol. 66, April 1978, and vol. 74, January 1986).

## A Note on Abbreviations

NOTE: On August 23, 1988, the National Bureau of Standards (NBS) became the National Institute of Standards and Technology (NIST); therefore, documents with either prefix are considered NIST publications.

Most readers are familiar with the commonly used abbreviations for the names of the professional journals that appear in this bibliography. Some publication series are peculiar to NIST and may call for explanation. They are:

NISTIR - NIST Interagency/Internal Report	NBSIR - NBS Interagency/Internal Report
NIST TN - NIST Technical Note	NBS TN - NBS Technical Note
NIST SP - NIST Special Publication	NBS SP - NBS Special Publication
NIST HB - NIST Handbook	NBS HB - NBS Handbook
NIST JRES - NIST Journal of Research	NBS JRES - NBS Journal of Research
NIST MN - NIST Monograph	NBS MN - NBS Monograph

## Purchase Procedures and Document Availability

NIST (NBS) Technical Notes, Special Publications, Handbooks, Journals of Research, and Monographs may be purchased from the U.S. Government Printing Office at the following address: New Orders, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954. Orders may be payed by major credit card, NTIS Deposit Account, or check or money order payable in U.S. dollars to the Superintendent of Documents. The Government Printing Office usually only stocks these publications for a year or two, after which they may be purchased from the National Technical Information Service at the address listed below.

NIST (NBS) Interagency/Internal Reports (NISTIRs, NBSIRs) may be purchased from the National Technical Information Service, Springfield, VA 22161, (703) 487-4650. Orders may be payed by major credit card, NTIS Deposit Account, or check or money order payable in U.S. dollars to NTIS.

Reprints of papers published in non-NIST media may be available in limited quantities from the authors.

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A large part of the labor of preparing a bibliography is spent collecting and arranging the material; Sheila Aaker, Frances Brown, Mary E. DeWeese, Kit Kline, and Jessie Page assisted with these chores. The main sources of material were the NIST Boulder Editorial Review Board database, the National Technical Information Service, and information supplied by individual authors.



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