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National Institute of Standards and Technology

*NISTIR 5028*

## A Bibliography of the NIST Electromagnetic Fields Division Publications

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Edited by

Ruth Marie Lyons  
Kathryn A. Gibson

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Edited by

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National Institute of Standards and Technology  
Boulder, Colorado 80303-3328

(supersedes NISTIR 5009)

September 1994



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U.S. DEPARTMENT OF COMMERCE, Ronald H. Brown, Secretary  
TECHNOLOGY ADMINISTRATION, Mary L. Good, Under Secretary for Technology  
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY, Arati Prabhakar, Director



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# A BIBLIOGRAPHY OF THE NIST ELECTROMAGNETIC FIELDS DIVISION PUBLICATIONS

Edited by

Ruth Marie Lyons and Kathryn A. Gibson

This bibliography lists the publications by the staff of the Electromagnetic Fields Division of the National Institute of Standards and Technology for the period January 1970 through July 1994. It supersedes NISTIR 5009 which listed the publications of the Electromagnetic Fields Division from January 1970 through July 1993. Selected earlier publications from the Division's predecessor organizations are included.

Key words: antennas; dielectric measurements; electromagnetic interference; microwave metrology; microwave power, impedance, attenuation; near-field antenna measurements; noise; nonionizing radiation; radiation hazards; standards; time domain; waveform metrology.

## INTRODUCTION

The Electromagnetic Fields Division was formed during the reorganization of NIST (formerly NBS) in April 1978. Originally, the Division developed measurement methods and standards, and provided metrological support for antenna systems, noise measurement equipment, fast pulse waveforms, electromagnetic interference, electromagnetic environmental characterization equipment, electromagnetic emission and immunity (or susceptibility) testing equipment, and especially for fields near sources or in other complicated field conditions. In April 1985, microwave and millimeter wave metrology was added to the Division.

We have attempted to include all work published by the Division staff in the period from January 1970 through July 1994. Work performed by authors before joining this Division or work by authors who have left this Division has been included only when it had special significance. A miscellaneous category includes general publications. A few references are listed in more than one category where appropriate.

Several other information sources may be useful to the reader who is interested in NIST activities connected with electromagnetic metrology. A companion bibliography, NISTIR 5029, lists publications of the Electromagnetic Technology Division for the same period. Topics include metrology for laser systems, optical fibers, optical communication equipment, cryoelectronics, superconductors, and other unusual electrical engineering materials. Three additional bibliographies list publications of the former Electromagnetics Division: NBSIR 73-320 (July 1972-June 1973); NBSIR 74-395 (July 1973-June 1974); NBSIR 75-818 (July 1974-June 1975). These were preceded by a series of unpublished reports (edited by H. M. Altschuler) that cover the period back to 1956.

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 the IEEE (volume 55, June 1967). Advances in the following decades were described in two other special issues of the same journal (volume 66, April 1978 and volume 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 Tech. Note - 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 paid 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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