

# Noise and Fluctuations

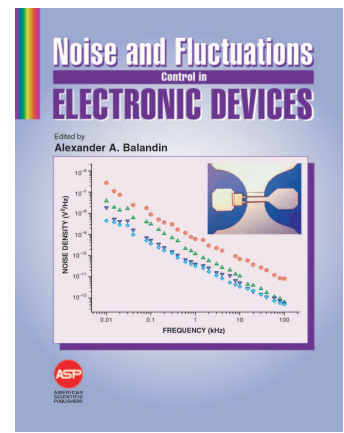
## Control in

# ELECTRONIC DEVICES

Edited by

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*Noise and Fluctuations Control in Electronic Devices* is the first single reference source to bring together the latest aspects of noise research for a wide range of multidisciplinary audiences. The goal of this book is to give an update of state-of-the-art in this interdisciplinary field, while focusing on new trends in electronic device noise research. Such new trends include investigation of noise in electronic devices based on novel materials, effects of the downscaling on the device noise performance, fluctuations and noise control in nanodevices, effective methods of noise control and suppression, etc. In addition, the book presents a historic overview of the development of the kinetic theory of fluctuation, essential for understanding of the present state-of-the-art. This book contains 18 state-of-the-art review chapters written by 33 internationally renowned experts from 15 countries. This book has about 1,500 bibliographical citations and hundreds of illustrations, figures, tables and equations. This book is a definite reference source for students, scientists, engineers, and specialists both in academia and industry working in such different fields as electronic and optoelectronic devices, electrical and electronic engineering, solid-state physics, nanotechnology, wireless communication, telecommunication, and semiconductor device technology.

## SELECTED CONTENTS:

- Low-Frequency Noise in GaN-Based Field-Effect Transistors
- Material Processing and Low Frequency Excess Noise in GaN Thin Films and Devices
- $1/f$  Noise in Polycrystalline Thin Film Transistors
- Noise Issues in Cold Cathodes for Vacuum Microelectronic Applications
- Low-Frequency Noise Performance of Scaled Deep Submicron MOS Devices
- Low-Frequency Noise in Advanced Bipolar Junction Transistors and Circuits
- Random Telegraph Signals in Deep Submicron Metal-Oxide-Semiconductor Field-Effect Transistors
- Hot-Electron Noise in III-V Semiconductor Structures for Ultrafast Devices
- Sub-Poissonian Recombination Noise in Macroscopic and Mesoscopic Semiconductor Junctions
- Noise Modeling and Measurement Techniques in Deep Submicron SOI Devices
- Impedance Field Noise Simulations of Si Devices Operating Under DC and AC Steady State Conditions
- Generation Recombination Noise in Semiconductors
- Monte Carlo Calculations of Shot-Noise in Mesoscopic Structures
- Sources of Lorentzian Components in the Low-Frequency Noise Spectra of Submicron MOSFETs
- Transport and Noise in Mesoscopic Conductors
- Low Frequency Noise in Nanomaterials and Nanostructures
- Noise in Nanodevices and much more ...

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## KEY FEATURES:

- First and only reference source to cover latest and emerging research aspects of noise in electronic devices.
- Covers noise issues on electronic devices based on novel materials such as GaN, silicon-on insulator, polycrystalline thin films, carbon nanotubes, etc.
- Addresses the effect of electronic device downscaling on noise performance from many different angles.
- Provides comprehensive coverage of the hottest topics related to noise and fluctuations in electronic devices.
- Presents methods of noise control and suppression in deep submicron and nanoscale devices
- 18 state-of-the-art review chapters written by world-renowned experts from academia and industry.
- A valuable reference source for students, researchers, engineers, specialists, and college and university professors working in the field of electronics, optoelectronics, wireless and telecommunications, electrical and electronic engineering, solid-state physics, device engineering, materials science, nanotechnology, thin films and semiconductor technology, etc.

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