



# Semiconductor Detectors For Nuclear Radiation Measurement

**Arthur H. Lefebvre, Dilip R.  
Ballal, Timothy C. Lieuwen, Joseph  
Zelina**

## **Semiconductor Detectors For Nuclear Radiation Measurement:**

*Semiconductor Detectors for Nuclear Radiation Measurement* Sándor Deme, 1971      *Measurement of Nuclear Radiation with Semiconductor Detectors* D. N. Poenaru, N. Vilcov, 1969

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REFERENCES      Radiation Detection Douglas McGregor, J. Kenneth Shultis, 2020-08-19

*Radiation Detection Concepts Methods and Devices* provides a modern overview of radiation detection devices and radiation measurement methods The book topics have been selected on the basis of the authors many years of

experience designing radiation detectors and teaching radiation detection and measurement in a classroom environment This book is designed to give the reader more than a glimpse at radiation detection devices and a few packaged equations Rather it seeks to provide an understanding that allows the reader to choose the appropriate detection technology for a particular application to design detectors and to competently perform radiation measurements The authors describe assumptions used to derive frequently encountered equations used in radiation detection and measurement thereby providing insight when and when not to apply the many approaches used in different aspects of radiation detection Detailed in many of the chapters are specific aspects of radiation detectors including comprehensive reviews of the historical development and current state of each topic Such a review necessarily entails citations to many of the important discoveries providing a resource to find quickly additional and more detailed information This book generally has five main themes Physics and Electrostatics needed to Design Radiation Detectors Properties and Design of Common Radiation Detectors Description and Modeling of the Different Types of Radiation Detectors Radiation Measurements and Subsequent Analysis Introductory Electronics Used for Radiation Detectors Topics covered include atomic and nuclear physics radiation interactions sources of radiation and background radiation Detector operation is addressed with chapters on radiation counting statistics radiation source and detector effects electrostatics for signal generation solid state and semiconductor physics background radiations and radiation counting and spectroscopy Detectors for gamma rays charged particles and neutrons are detailed in chapters on gas filled scintillator semiconductor thermoluminescence and optically stimulated luminescence photographic film and a variety of other detection devices

**Silicon Solid State Devices And Radiation Detection** Claude Leroy, Pier-giorgio Rancoita, 2012-07-24 This book addresses the fundamental principles of interaction between radiation and matter the principles of working and the operation of particle detectors based on silicon solid state devices It covers a broad scope in the fields of application of radiation detectors based on silicon solid state devices from low to high energy physics experiments including in outer space and in the medical environment This book also covers state of the art detection techniques in the use of radiation detectors based on silicon solid state devices and their readout electronics including the latest developments on pixelated silicon radiation detector and their application The content and coverage of the book benefit from the extensive experience of the two authors who have made significant contributions as researchers as well as in teaching physics students in various universities

*Semiconductor Radiation Detection Systems* Krzysztof Iniewski, 2018-10-03 Semiconductor Radiation Detection Systems addresses the state of the art in the design of semiconductor detectors and integrated circuit design in the context of medical imaging using ionizing radiation It addresses exciting new opportunities in X ray detection Computer Tomography CT bone dosimetry and nuclear medicine PET SPECT In addition to medical imaging the book explores other applications of semiconductor radiation detection systems in security applications such as luggage scanning dirty bomb detection and border control Features a chapter written by well known

Gamma Ray Imaging authority Tadayuki Takahashi Assembled by a combination of top industrial experts and academic professors this book is more than just a product manual It is practical enough to provide a solid explanation of presented technologies incorporating material that offers an optimal balance of scientific and academic theory With less of a focus on math and physical details the author concentrates more on exploring exactly how technologies are being used With its combined coverage of new materials and innovative new system approaches as well as a succinct overview of recent developments this book is an invaluable tool for any engineer professional or student working in electronics or an associated field

*Nuclear Science Abstracts*, 1976-06      Measurement and Detection of Radiation Nicholas Tsoulfanidis, Sheldon Landsberger, 2021-09-15 As useful to students and nuclear professionals as its popular predecessors this fifth edition provides the most up to date and accessible introduction to radiation detector materials systems and applications There have been many advances in the field of radiation detection most notably in practical applications Incorporating these important developments *Measurement and Detection of Radiation Fifth Edition* provides the most up to date and accessible introduction to radiation detector materials systems and applications It also includes more problems and updated references and bibliographies and step by step derivations and numerous examples illustrate key concepts New to the Fifth Edition Expanded chapters on semiconductor detectors data analysis methods health physics fundamentals and nuclear forensics Updated references and bibliographies New and expanded problems

*Understanding Radioactive Aerosols and Their Measurement* S.D. Schery, 2012-12-06 This book is intended as an introduction to radioactivity and aerosols for the scientifically literate reader who has had no previous exposure to either of these subjects Although its main focus is radioactive aerosols on the road to this subject I provide short somewhat independent introductions to both radioactivity and aerosols with some emphasis on experimental aspects The audience I have in mind is upper level undergraduates or beginning graduate students with a minimum background of introductory college courses in physics chemistry and calculus This book may also be useful to crossover professional professionals in other fields of science and engineering for example biology or geoscience who would like a step by step introduction to this subject matter from the physical science perspective In writing this book I have been sensitive to requests and suggestions from students who need some background in this subject matter but will probably not specialize in it These students are bright but busy and they sometimes feel overwhelmed by the mass of information in advanced comprehensive texts No matter how noble the intentions of the authors or the teachers assigning the books these students often do not have time to read such books through cover to cover and they find it difficult to pick out a coherently connected subset of the material Furthermore modern students studying an interdisciplinary subject like radioactive aerosols are likely to be more diversified than ever in educational background in interests and in preparation

**Fundamentals of Nuclear Science and Engineering Third Edition** J. Kenneth Shultis, Richard E. Faw, 2016-11-30 *Fundamentals of Nuclear Science and Engineering Third Edition* presents the nuclear science concepts

needed to understand and quantify the whole range of nuclear phenomena Noted for its accessible level and approach the Third Edition of this long time bestselling textbook provides overviews of nuclear physics nuclear power medicine propulsion and radiation detection Its flexible organization allows for use with Nuclear Engineering majors and those in other disciplines The Third Edition features updated coverage of the newest nuclear reactor designs fusion reactors radiation health risks and expanded discussion of basic reactor physics with added examples A complete Solutions Manual and figure slides for classroom projection are available for instructors adopting the text

**Measurements of Nuclear Radiation with Semiconductor Detectors** D. N. Poenaru, N. Vilcov, 1969

**Radioactivity and Its Measurement** W. B. Mann, R. L. Ayres, S. B. Garfinkel, 2016-12-15 Begins with a description of the discovery of radioactivity and the historic research of such pioneers as the Curies and Rutherford After a discussion of the interactions of and rays with matter the energetics of the different modes of nuclear disintegration are considered in relation to the Einstein mass energy relationship as applied to radioactive transformations Radiation detectors and radioactivity measurements are also discussed

**Handbook of Particle Detection and Imaging** Claus Grupen, Irène Buvat, 2012-01-08 The handbook centers on detection techniques in the field of particle physics medical imaging and related subjects It is structured into three parts The first one is dealing with basic ideas of particle detectors followed by applications of these devices in high energy physics and other fields In the last part the large field of medical imaging using similar detection techniques is described The different chapters of the book are written by world experts in their field Clear instructions on the detection techniques and principles in terms of relevant operation parameters for scientists and graduate students are given Detailed tables and diagrams will make this a very useful handbook for the application of these techniques in many different fields like physics medicine biology and other areas of natural science

**Radiation Detection and Measurement** Glenn F. Knoll, 1979 The author uses his extensive research experience in radiation measurements nuclear instrumentation and radiation imaging to provide you with an invaluable resource

**Nuclear Radiation Detectors** S. S. Kapoor, V. S. Ramamurthy, 1986-04

*Gas Turbine Combustion, Fourth Edition* Arthur H. Lefebvre, Dilip R. Ballal, Timothy C. Lieuwen, Joseph Zelina, 2011-06-22 This book presents a complete global examination of the complications diagnoses and management of HIV infections This is essential for the HIV specialist and for those involved in HIV care this book provides information on the constantly changing and expanding drug therapies and treatment strategies for HIV the latest developments and frequently updated treatment guidelines includes new chapter on global efforts against HIV AIDS Draws from author's international experience includes a chapter on HIV and aging hot topic in the field looks at the expansion and routinization of HIV testing a complete global examination of the complications diagnoses and management of HIV infections expert and authoritative advice from Joseph R Masci Director of Medicine at Elmhurst Hospital Center in New York who is highly respected in the field user friendly sections core curriculum in HIV medicine special populations and systems of care up to date references ensuring you have access to the most recent

information     *Index to the Literature of Semiconductor Detectors* James M. McKenzie, 1969     **Scientific and Technical Aerospace Reports**, 1973     PHYSICAL METHODS, INSTRUMENTS AND MEASUREMENTS – Volume II Yuri Mikhailovich Tsipenyuk, 2009-04-15 Physical Methods Instruments and Measurements theme is a component of the Encyclopedia of Physical Sciences Engineering and Technology Resources which is part of the global Encyclopedia of Life Support Systems EOLSS an integrated compendium of twenty Encyclopedias The Theme provides a complete survey of the present status of our knowledge of modern physical instruments and measurements It is organized in the following main topics Measurements and Measurement Standards Sources of Particles and Radiation Detectors and Sensors Imaging and Characterizing Trace Element Analysis Technology of Physical Experiments Applications of Measurements and Instrumentation which are then expanded into multiple subtopics each as a chapter These four volumes are aimed at the following five major target audiences University and College Students Educators Professional Practitioners Research Personnel and Policy Analysts Managers and Decision Makers and NGOs     U.S. Government Research Reports, 1961     **TID.**, 1962

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