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Nota di contenuto	Noble Gas Detectors; Foreword; Contents; Preface; Acknowledgements; 1 Introduction; 1.1 Units and Definitions; 1.2 Brief History of Noble Gas Detectors; 2 Noble Fluids as Detector Media; 2.1 Physical Properties of Dense Noble Gases; 2.2 Energy Dissipation in Noble Gases; 2.3 Ionization Clusters and Principal Limitations on Position Resolution of Noble Gas Detectors; 2.4 Ionization and Recombination; 2.4.1 Jaffe Model of Recombination; 2.4.2 Onsager Model of Recombination; 2.4.3 Influence of -Electrons; 2.5 Principal Limitations for Energy Resolution; 2.6 Detection of Nuclear Recoils 2.7 Detection of High-Energy Particles3 Elementary Processes Affecting Generation of Signals; 3.1 Collection of Charge Carriers; 3.1.1 Charge Carrier Drift in Gases Under High Pressure; 3.1.1.1 Drift of Electrons in Gases; 3.1.1.2 Drift of Ions in Gases; 3.1.2 Drift of Charge Carriers in Condensed Phases; 3.1.2.1 Drift of Electrons in Condensed Phases; 3.1.2.2 Drift of Ions and Holes in Condensed Noble Gases; 3.1.3 Charge

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3.3 Charge Carrier Transfer at Interfaces3.3.1 Quasifree Electron Emission; 3.3.1.1 Thermal Electron Emission; 3.3.1.2 Hot Electron Emission; 3.3.1.3 Transition of Quasifree Electrons Along Interface; 3.3.2 Electron Emission From Localized States; 3.3.3 Transitions Between Different Media; 3.3.4 Ion Emission from Nonpolar Dielectrics; 3.3.5 Electron Emission into Nonpolar Dielectrics; 3.3.5.1 Electron Emission From Cathodes; 3.3.5.2 Electron Injection Through the Free Interface; 3.4 Properties of Noble Gas Scintillators; 3.4.1 Primary Processes; 3.4.2 Emission Spectra
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5.1 Generation of Induction Charge

Sommario/riassunto

This book discusses the physical properties of noble fluids, operational principles of detectors based on these media, and the best technical solutions to the design of these detectors. Essential attention is given to detector technology: purification methods and monitoring of purity, information readout methods, electronics, detection of hard ultra-violet light emission, selection of materials, cryogenics etc.The book is mostly addressed to physicists and graduate students involved in the preparation of fundamental next generation experiments, nuclear engineers developing instrumentation