Wiescher

Radioactivity

A Natural Phenomenon

This book provides an accessible introduction to radioactivity. The first in a two-volume set, this volume is presented in two parts, covering radiation physics and natural radiation exposure. It first explores the discovery and physics of the phenomenon of radioactivity, covering the discovery of radioactive decay and the historical development of the physics and applications of radioactivity through to 1940. Chapters then present descriptive summaries of the physics of the atom and the atomic nucleus, mass and energy conditions, the nature of isotopes, and the different decay patterns. Chapter three discusses decay laws and introduces natural origins of radioactivity as well as methods for producing radioactive isotopes through nuclear reaction processes in reactor and accelerator. The book then provides an introduction on dosimetry, radiation chemistry and impact of radiation on biological systems. The second half of the book details natural radioactivity and the role of radioactivity in the formation of the planetary system and our Earth. The author describes how the inner radioactivity of our planet determines its dynamics and how it could have contributed to the origins of life. The volume concludes with an exploration of the external and internal radioactivity to which humans are exposed and their possible side effects. This book will be of interest to non-science undergraduate and physics graduate students alike, as well as to interested lay-people looking for an introduction to radioactivity. Key Features: - Written in an accessible style, to be understood by readers without a formal scientific education - Highly illustrated throughout - Authored by an expert in the field, drawing from decades of experience in experimental nuclear physics

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