

Nuclear physics with polarized particles

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Abstrak

A significant part of the book is devoted to introducing the formal theory—a description of polarization and of nuclear reactions with polarized particles. The remainder of the text describes the physical basis of methods and devices necessary to perform experiments with polarized particles and to measure polarization and polarization effects in nuclear reactions. The book concludes with a brief review of modern applications in medicine and fusion energy research. For reasons of conciseness and of the pedagogical aims of this volume, examples are mainly taken from low-energy installations such as tandem Van de Graaff laboratories, although the emphasis of present research is shifting to medium- and high-energy nuclear physics. Consequently, this volume is restricted to describing non-relativistic processes and focuses on the energy range from astrophysical energies (a few keV) to tens of MeV. It is further restricted to polarimetry of hadronic particles.