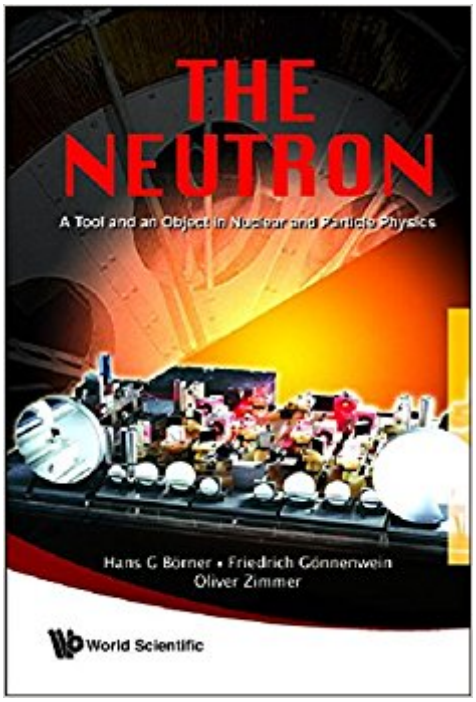
The Neutron: A Tool And An Object In Nuclear And Particle Physics



Synopsis

The reactor-based laboratory at the Institut Laue-Langevin is recognized as the world’s most productive and reliable source of slow neutrons for the study of low energy particle and nuclear physics. The book highlights the impact of about 600 very diverse publications about work performed in these fields during the past more than 30 years of reactor operation at this institute. On one hand neutrons are used as a tool to generate nuclei in excited states for studying their structure and decay, in particular fission. Uniquely sensitive experiments can tell us a great deal about the symmetry characteristics of nuclei and their fission properties. On the other hand, studies with slow neutrons as the object of investigation are complementary to studies at huge particle accelerators. Experiments carried out at the ILL contribute to elucidate basic questions about the building blocks of the Universe by analyzing very precisely subtle neutron properties.

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Customer Reviews

"The style is succinct and very focused for the chapter on nuclear fission. The authors manage to give us a panorama of the experimental situation, which in itself is not easy at all. It is a useful reference to keep in hand." -- IL Nouvo Saggiatore

The reactor-based laboratory at the Institut Laue Langevin is recognized as the world’s most productive and reliable source of slow neutrons for the study of low energy particle and nuclear physics. This book highlights for the first time the impact of about 600 very diverse publications,

produced in these fields at this institute during the past 30 years. On one hand neutrons are used as a tool to generate nuclei in excited states for studying their structure and behavior. On the other hand, uniquely sensitive experiments using neutrons directly as the object of investigation, can tell us a great deal about the symmetry characteristics of nuclei, particles, and their interactions. Complementary to studies at huge particle accelerators the experiments carried out at the ILL contribute to elucidate important questions about the building blocks of the Universe by carrying out subtle, very precise experiments at very low energies.