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| Nota di contenuto | Preface; CONTENTS; Fission Approach to Heavy Particle Radioactivities; 1. Introduction; 2. Cold fission; 3. Region of cluster emitters; 4. Shell effects; 5. New candidates; 6. Emission of 14C in competition with 12C; 7. Half life estimation with the universal curve; References; MYRRHA a Multipurpose European ADS for R&D; 1. Introduction; 2. Spallation target; 3. Sub-critical core; 4. Containment building; 5. Objectives; 6. Conclusions; References; Fusion-fission Dynamics and Synthesis of the Superheavy Elements; 1. Introduction; 2. Dynamical features of nuclear fission<br>3. Fusion dynamics of massive systems : Two Step Model4. Predictions of excitation functions for residue cross sections of SHE; 5. Summary; References; Quasifission of the Dinuclear System; 1. Introduction; 2. Master Equations for Nucleon Transfer; 3. Charge and Mass Yields; 4. Variance of Total Kinetic Energy; 5. Results for Hot Fusion Reactions; References; Microscopic Optical Potential for Nuclear Transmutation |

Fusion Reactors and ADS Projects; 1. Introduction; 2. Double-folding method calculation of nuclear potential for complex particles
3. Microscopic optical potential for a-particles interacting with 90Zr4. Calculation of Deuterium-Lithium cross sections for energies up to 50 MeV; 5. Quantum-statistical MSD processes at low and intermediate energies on 90Zr and 100Mo; References; Identification of Excited 10Be Clusters Born in Ternary Fission of 252Cf; 1. Introduction; 2. Experiment; 3. Results and Discussion; References; Production of Photofission Fragments and Study of their Nuclear Structure; References; Variation of Charge Density in Fusion Reactions; 1. Introduction; 2. Geometry related charge density path
3. Total deformation energy4. Results and discussion; 5. Conclusion; References; Parent Di-Nuclear Quasimolecular States as Exotic Resonant States; 1. Introduction; 2. Properties of the exotic resonant poles and states; 3. Di-nuclear PQMS - a particular case of ERS; References; Fission Investigations and Evaluation Activities at IRMM; 1. Experimental investigations; 2. The statistical model; 3. Results and discussions; References; Investigation of GeV Proton-Induced Spallation Reactions; 1. Motivation; 2. Experiment; 3. Pre-equilibrium cluster emission; 4. Excitation energy distributions
5. SummaryReferences; Evidence for Transient Effects in Fission; 1. Introduction; 2. Experiment; 3. Results; 4. Conclusion; References; Traps for Fission Product Ions at IGISOL; 1. Introduction; 2. Penning-trap; 3. Mass measurements; 4. Summary; References; Triple-Humped Fission Barrier and Clusterization in the Actinide Region; 1. Introduction; 2. Experimental method; 3. Summary; References; Microscopic Analysis of the a-Decay in Heavy and Superheavy Nuclei; 1. Introduction and model; 2. Analysis of data; 3. Conclusions; References; Searching for Critical Point Nuclei in Fission Products
1. Introduction

Sommario/riassunto

This book covers new experimental and theoretical studies that focus on the modern developments of nuclear fission, aiming at various applications in a wide range of fields and bringing together scientists working in different fields related to nuclear fission. The following topics are dealt with: radioactive beam facilities based on nuclear fission; nuclear waste transmutations and the future accelerator-driven system; fission and spallation nuclear data and modeling; experimental and theoretical advances in the study of nuclear fission; fusion reactions and decay modes of superheavy nuclei;