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Nota di contenuto	Developments in sub-barrier reactions -- Multidimensional tunneling description of subbarrier fusion -- Investigation of mechanisms limiting the near-barrier fusion of massive nuclei -- Influence of inelastic couplings on $^{32}\text{S} + ^{24}\text{Mg}$ sub-barrier fusion -- Nuclear deformation effects in sub-barrier fusion of $^{16}\text{O} + ^{147,149}\text{Sm}$ -- Sub — Coulomb fusion of $^{24,26}\text{Mg}$ with $^{90,92,94,96}\text{Zr}$ -- Influence of hexadecapole deformations of the nuclear shape on the enhancement of subbarrier fusion cross sections -- Subbarrier fusion in the surface friction model -- Spectroscopic study of sub-barrier quasi-elastic nuclear reactions -- Fusion of ^{14}N , $^{16}\text{O} + ^{59}\text{Co}$ at near barrier energies

-- Fusion reactions of $^{58}\text{Ni} + ^{90,91,94}\text{Zr}$ around the Coulomb barrier
-- Nuclear reactions in collisions of very heavy ions at energies below and near the barrier -- Sub-barrier reactions measured using a recoil mass separator -- How well do we understand quasi-elastic reactions at energies close to the barrier -- Transfer reactions for the $^{50}\text{Ti} + ^{90}\text{Zr}$ system below the Coulomb barrier -- Correlation between transfer and fusion in heavy ion reactions at the Coulomb barrier -- Fusion and transfer around the Coulomb-barrier of the systems $^{33}\text{S} + ^{90,91,92}\text{Zr}$ -- Measurements of 180° sub-barrier transfer reaction cross sections in $\text{S} + \text{Mo}$, Nb systems -- Semiclassical description of multipair transfer processes in heavy-ion reactions -- Transfer and inelastic channels around the Coulomb barrier -- Probing the spin distribution in near-barrier fusion reactions -- Intimations of non-compound fission at near-barrier energies -- Subbarrier fusion reaction of $^{19}\text{F} + ^{232}\text{Th}$ -- Algebraic scattering theory and its application to heavy ion collisions -- Absorption under the Coulomb barrier; Its importance for the scattering and fusion of heavy ions at sub- and near-barrier energies -- Channel coupling effects in heavy-ion elastic scattering and sub-barrier fusion -- Reactions in the collision of oxygen ions with lead at energies close to the Coulomb barrier -- Dynamical aspects of heavy ion reactions a microscopic approach -- A microscopic nucleus-nucleus potential -- Fusion and scattering of polarized ^{23}Na -- Threshold anomalies in the scattering of oxygen by ^{208}Pb -- Concluding remarks -- The design of recoil separators -- General properties of recoil mass spectrometers -- The recoil separator system at GSI — description, experiments and further plans -- Developments at the Daresbury Recoil Separator -- The L.N.L. recoil mass spectrometer: First tests -- The Argonne Fragment Mass Analyzer -- Design of the Large Acceptance Recoil-nucleus mass Analyzer LARA.

Sommario/riassunto

Nuclear reactions at energies near and below the Coulomb barrier have found much interest since unexpectedly large cross sections of fusion for heavy ions were discovered around 1980. This book covers the more important experimental and theoretical aspects such as sub-barrier fusion, sub- and near-barrier transfer, couplings of various reaction channels, neck-formation, the threshold anomaly, spin distributions and fusion of polarized ions. The symposium also included a session devoted to mass spectrometry for fast reaction products.
