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Descrizione fisica	xviii, 378 p. : ill
Disciplina	539.7/5
Soggetti	Direct reactions (Nuclear physics) Nuclear reactions
Lingua di pubblicazione	Inglese
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Note generali	Title from title screen.
Nota di bibliografia	Includes bibliographical references (p. 365-372) and index.
Nota di contenuto	Introduction: Direct and compound nuclear reactions -- The plane-wave theory -- Scattering theory and general results -- The phenomenological optical potential -- Distorted- wave born approximation -- Operator formalism -- Calculation of the DWBA amplitude -- Coupled equations and the effective interaction -- Microscopic theory of inelastic nucleon scattering from nuclei -- Core polarization -- Effective interactions and the free nucleon-nucleon force -- Further developments in the theory of inelastic scattering -- Scattering from deformed rotational nuclei -- Calculation of specific components of the optical potential -- Two-nucleon transfer reactions -- Finite-range interaction in transfer reactions -- Higher-order processes in particle transfer reactions -- Heavy-ion reactions -- Polarizability of nuclear wave functions in heavy-ion reactions.
Sommario/riassunto	This classic volume, reprinted twenty years after it was first published, takes a close look at the theory of direct nuclear reactions. It emphasizes the microscopic aspects of these reactions and their description in terms of the changes induced in the motion of individual nucleons, except where collective motion in nuclei gives a more succinct description. Assuming only a modest knowledge of quantum

mechanics and some acquaintance with angular momentum algebra, the book begins essentially at the beginning. Its goal is to provide the novice with the means of becoming competent to do research on direct reactions, and the experienced researcher with a detailed discussion of advanced topics. For completeness, appendices on angular momentum algebra and special functions are included.
