Record Nr. UNINA9910464000003321 Fast ion-atom and ion-molecule collisions [[electronic resource] /] / **Titolo** editor Dzevad Belkic, Karolinska Institute, Stockholm, Sweden Singapore;; Hackensack, NJ,: World Scientific. 2013 Pubbl/distr/stampa **ISBN** 1-283-97153-4 981-4407-13-5 Descrizione fisica 1 online resource (335 p.) Collana Interdisciplinary research on particle collisions and quantitative spectroscopy;; vol. 1 Altri autori (Persone) BelkicD (Dzevad) Disciplina 539.7 539.7/57 539.757 Soggetti Atom-molecule collisions Ion-molecule collisions Electronic books. Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Includes bibliographical references and index. Nota di bibliografia Nota di contenuto Preface to Volume 1; Editorial; Acknowledgments; Contents; 1. Electron Capture Processes in Ion-Atom Collisions at Intermediate Projectile Energies M. Schulz, A. L. Harris, T. Kirchner and D. H. Madison; 1. Introduction; 2. Experimental Methods; 3. Theory; 3.1. 4-Body Distorted Wave (4DW) Theory: 3.2. The Basis Generator Method within the Impact-Parameter Picture; 4. Discussion; 4.1. Transfer and Target Excitation: 4.2. Double Capture: 5. Conclusions: Acknowledgements: References 2. COLTRIMS Experiments on State-Selective Electron Capture in Alpha-He Collisions at Intermediate Energies M. Alessi, S. Otranto and P. Focke1. Introduction; 2. The COLTRIMS Concept; 3. Experiment; 4. Electron Capture in 3He2++He; 5. Summary; References; 3. Recent Advances in the Theory and Modelling of Multiple Processes in Heavy-Particle Collisions T. Kirchner, M. Zapukhlyak, M. F. Ciappina and M. Schulz; 1. Introduction; 2. Theory; 2.1. Independent Electron Approximation for Capture Processes; 2.2. Perturbative Models of

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Sommario/riassunto

The principal goal of this book is to provide state-of-the-art coverage of the non-relativistic three- and four-body theories at intermediate and high energy ion-atom and ion-molecule collisions. The focus is on the most frequently studied processes: electron capture, ionization, transfer excitation and transfer ionization. The content is suitable both for graduate students and experienced researchers. For these collisions, the literature has seen enormous renewal of activity in the development and applications of quantum-mechanical theories. This subject is of relevance in several branches of