

Multi Electronic Processes in Collisions Involving Charged Particles and Atoms

Multi electronic processes are ubiquitous in nature and play a crucial role in many areas of physics and chemistry, such as plasma physics, astrophysics, and radiation therapy. These processes involve the interaction of charged particles with atoms or molecules, resulting in the excitation, ionization, or dissociation of the target system.



Multi-electronic Processes in Collisions Involving Charged Particles and Photons with Atoms and Molecules (Frontiers in Nuclear and Particle Physics Book 1) by Dunyan Yan

★★★★★ 5 out of 5

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Enhanced typesetting : Enabled
Print length : 330 pages



In this book, we provide a comprehensive overview of multi electronic processes in collisions involving charged particles and atoms. We begin with a discussion of the fundamental concepts and theoretical approaches used to describe these processes. We then review the experimental techniques used to study multi electronic processes, and we present a detailed discussion of the experimental results obtained for a variety of collision systems.

Fundamental Concepts and Theoretical Approaches

The fundamental concepts of multi electronic processes are based on the quantum mechanics of atoms and molecules. We begin by introducing the basic concepts of atomic and molecular structure, and we discuss the different types of interactions that can occur between charged particles and atoms or molecules. We then develop the theoretical framework for describing multi electronic processes, including the time-dependent Schrödinger equation and the Born approximation.

Experimental Techniques

The experimental study of multi electronic processes requires the use of specialized techniques to generate and detect charged particles and to measure the properties of the target system. In this chapter, we review the different experimental techniques that are used to study multi electronic processes, including electron scattering, ion scattering, and photon-induced processes.

Experimental Results

In this chapter, we present a detailed discussion of the experimental results obtained for a variety of collision systems. We begin with a discussion of the results obtained for electron-atom collisions, and we then discuss the results obtained for ion-atom collisions and photon-induced processes. We focus on the similarities and differences between the results obtained for different collision systems, and we discuss the implications of these results for our understanding of multi electronic processes.

Applications

Multi electronic processes have a wide range of applications in many areas of science and technology. In this chapter, we discuss some of the most important applications of multi electronic processes, including plasma physics, astrophysics, and radiation therapy. We provide examples of how multi electronic processes are used in these applications, and we discuss the challenges and opportunities for future research.

In this book, we have provided a comprehensive overview of multi electronic processes in collisions involving charged particles and atoms. We have discussed the fundamental concepts and theoretical approaches used to describe these processes, we have reviewed the experimental techniques used to study multi electronic processes, and we have presented a detailed discussion of the experimental results obtained for a variety of collision systems. We have also discussed the applications of multi electronic processes in a variety of areas of science and technology.

We believe that this book will be a valuable resource for researchers and students who are interested in the study of multi electronic processes. We hope that this book will stimulate further research in this important area of physics and chemistry.



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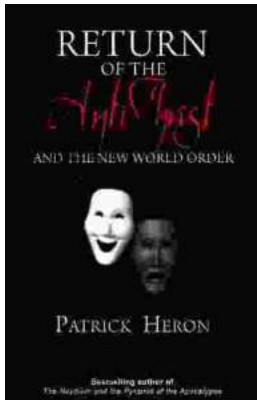
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