



## Atomic Inner-Shell Physics

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Book Condition: New. Publisher/Verlag: Springer, Berlin | The physics of atomic inner shells has undergone significant advances in recent years. Fast computers and new experimental tools, notably syn chrotron-radiation sources and heavy-ion accelerators, have greatly enhanced the scope of problems that are accessible. The level of research activity is growing substantially; added incentives are provided by the importance of inner-shell processes in such diverse areas as plasma studies, astrophysics, laser technology, biology, medicine, and materials science. The main reason for all this exciting activity in atomic inner-shell physics, to be sure, lies in the significance of the fundamental problems that are coming within grasp. The large energies of many inner-shell processes cause relativistic and quantum-electrodynamic effects to become strong. Unique opportunities exist for delicate tests of such phenomena as the screening of the electron self-energy and the limits of validity of the present form of the frequency-dependent Breit interaction, to name but two. The many-body problem, which pervades virtually all of physics, presents somewhat less intractable aspects in the atomic inner-shell regime: correlations are relatively weak so that they can be treated perturbatively, and the basic potential is simple and known! The dynamics of inner-shell processes are characterized by...



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