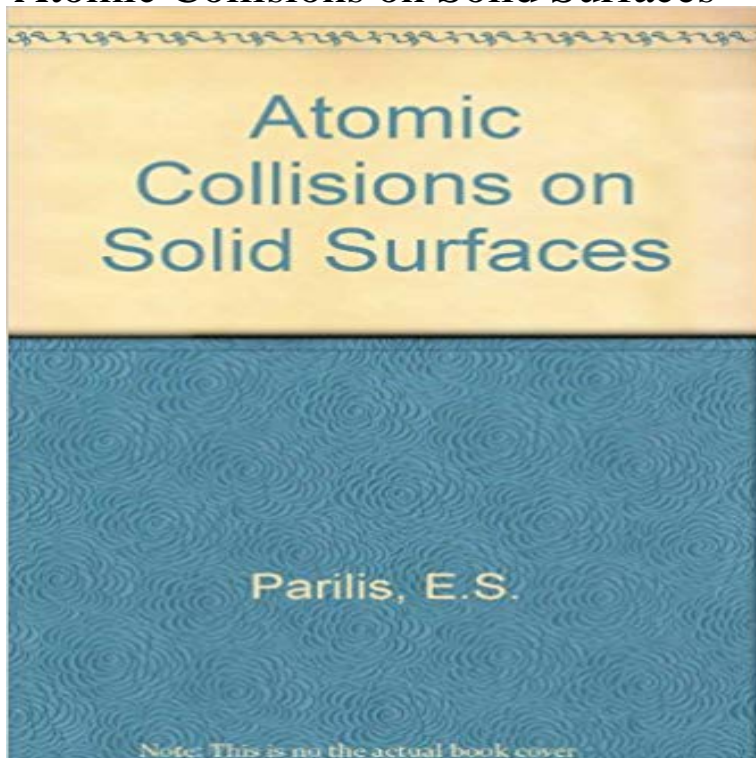


Atomic Collisions on Solid Surfaces



This text deals with the theory of collisions of medium-energy atoms on the surface of a solid and the accompanying effects, namely, atom and molecule scattering charge exchange, sputtering of atoms and large biomolecules, ion and electron emission. The topics covered include analytical theories and computer investigations which the authors made over the past 30 years. Special attention is paid to the development of the models and mechanisms for the phenomena occurring at atomic collisions on solid surfaces. The secondary processes are described for the various combinations of incident ions and a solid. Single- and multiple-charged ions are used as the incident ions bombarding targets being different both in structure (single crystal, polycrystal and amorphous) and electronic properties (metal semiconductor and insulator). One of the major goals of the studies discussed is the development of a theoretical foundations for the diagnosis of the composition, structure and state of the surface of solids and thin films, as well as for their quality control in present-day technology. This text should be of interest to all those involved in ion-solid interaction studies.

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