

Cambridge University Press

0521020301 - Atomic and Ion Collisions in Solids and at Surfaces: Theory, Simulation and Applications

Edited by Roger Smith

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ATOMIC AND ION COLLISIONS IN
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This book is an introduction to the application of computer simulation and theory in the study of the interaction of energetic particles (<1 eV to the mega-electronvolt range) with solid surfaces.

The authors describe methods that are applicable both to hard collisions between nuclear cores of atoms and to soft interactions, in which chemical effects or long-range forces dominate. The range of potential applications of the technique is enormous. In surface science, applications include surface atomic structure determination using ion scattering spectroscopy or element analysis using SIMS or other techniques that involve depth profiling. Industrial applications include optical or hard coating deposition, ion implantation in semiconductor device manufacture and nanotechnology. Plasma–sidewall interactions in fusion devices may also be studied using the techniques described.

This book will be of interest to graduate students and researchers, both academic and industrial, in surface science, semiconductor engineering, thin-film deposition and particle–surface interactions in departments of physics, chemistry and electrical engineering.

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THEORY, SIMULATION AND APPLICATIONS

Edited by Roger Smith

ROGER SMITH

Loughborough University

MARIO JAKAS

Universidad de la Laguna

DAVE ASHWORTH, BOB OVEN AND MARK BOWYER

University of Kent

IVAN CHAKAROV AND ROGER WEBB

University of Surrey



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