1.	Record Nr.	UNINA9910298609503321
	Autore	Gräfe Wolfgang
	Titolo	Quantum Mechanical Models of Metal Surfaces and Nanoparticles / / by Wolfgang Gräfe
	Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2015
	ISBN	3-319-19764-9
	Edizione	[1st ed. 2015.]
	Descrizione fisica	1 online resource (104 p.)
	Collana	SpringerBriefs in Applied Sciences and Technology, , 2191-530X
	Disciplina	530.12015118
	Soggetti	Materials—Surfaces
		Thin films
		Mathematical physics
		Materials science
		Surfaces and Interfaces, Thin Films
		Theoretical, Mathematical and Computational Physics
		Characterization and Evaluation of Materials
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Note generali	Description based upon print version of record.
	Nota di bibliografia	Includes bibliographical references and index at the end of each chapters.
	Nota di contenuto	Introduction -- The Model of Kronig and Penney -- Tamm's Electronic Surface States -- The Extension of the Kronig-Penney-Model by Binding Forces -- The Separation of the Semi-infinite Model and the Calculation of the Surface Parameters for the Three-dimensional Body at T = 0K -- The Surface Parameters for the Semi-infinite Three-dimensional Body at Arbitrary Temperature -- The Surface Free Energy and the Point of Zero Charge Determined for the Semi-infinite model -- A Model with a Limimited Number of Potential Wellss -- Surface Stress-Charge Coefficient (Estance) -- Regard to the Spin in the Foregoing Texts -- Detailed Calculation of the Convolution Integrals -- Comparison of the Results for the Semi-infinite and the Limited Body -- Calculation of Surface Stress and Herring's Formula -- Miscellaneous and Open Questions. Nomenclature -- Subject Index.
	Sommario/riassunto	This book proposes two simple quantum mechanical models for the analytical description of metal surfaces and nanoparticles. It gives an

ostensive picture of the forces acting in a metal surface and deduces analytical formulae for the description of their physical properties. This book explains the relation between near-surface stress and familiar surface parameters. The concept of the separation of the three-dimensional body into three one-dimensional subsystems was applied. The content is of interest to all those working in the field of surface physics.