1.	Record Nr.	UNINA9910145253703321
	Autore	Levitin Valim
	Titolo	Strained metallic surfaces [[electronic resource]] : theory, nanostructuring and fatigue strength / / Valim Levitin and Stephan Loskutov
	Pubbl/distr/stampa	Weinheim, : Wiley-VCH, c2009
	ISBN	1-282-02541-4 9786612025419 3-527-62643-3 3-527-62644-1
	Descrizione fisica	1 online resource (260 p.)
	Altri autori (Persone)	LoskutovStephan
	Disciplina	620.16
	Soggetti	Metals - Surfaces Physical metallurgy
	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 (p. 243-246) and index.
	Nota di contenuto	Strained Metallic Surfaces; Contents; Introduction; 1 Peculiarities of the Metallic Surface; 1.1 Surface Energy and Surface Stress; 1.2 Crystal Structure of a Surface; 1.3 Surface Defects; 1.4 Distribution of Electrons near the Surface; 1.4.1 Model of Free Electrons in Solids; 1.4.2 Semi-Infinite Chain; 1.4.3 Infinite Surface Barrier; 1.4.4 The Jellium Model; 1.5 Summary; 2 Some Experimental Techniques; 2.1 Diffraction Methods; 2.1.1 The Low-Energy Electron Diffraction Method; 2.1.2 The Reflection High-Energy Electron Diffraction Method; 2.1.3 The X-ray Measurement of Residual Stresses 2.1.3.1 Foundation of the Method2.1.3.2 Experimental Installation and Precise Technique; 2.1.4 Calculation of Microscopic Stresses; 2.2 Distribution of Residual Stresses in Depth; 2.3 The Electronic Work Function; 2.3.1 Experimental Installation; 2.3.2 Measurement Procedure; 2.4 Indentation of Surface. Contact Electrical Resistance; 2.5 Materials under Investigation; 2.6 Summary; 3 Experimental Data on the Work Function of Strained Surfaces; 3.1 Effect of Elastic Strain; 3.2 Effect of Plastic Strain; 3.2.1 Physical Mechanism; 3.3 Influence of Adsorption and Desorption; 3.4 Summary

Sommario/riassunto

Providing students as well as engineers and researchers with a must-have insight into the complexities of surface structure and behavior, this monograph extends beyond the usual introductory books, presenting concentrated knowledge on the surface science of metals, and connecting fundamentals with actual applications. Beginning with explanations of the intricacies of surfaces and their differences to bulk, it takes the reader through the vital steps towards macroscopic metallic components as well as surface nanostructuring. In so doing, it makes use of theory, experimental techniques, examples