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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

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6.1 Forecast Possibilities of the Work Function. Experimental Results
6.1.1 Aluminum and Titanium-Based Alloys; 6.1.2 Superalloys; 6.2 Dislocation Density in Fatigue-Tested Metals; 6.3 Summary; 7 Computer Simulation of Parameter Evolutions during Fatigue; 7.1 Parameters of the Physical Model; 7.2 Equations; 7.2.1 Threshold Stress and Dislocation Density; 7.2.2 Dislocation Velocity; 7.2.3 Density of Surface Steps; 7.2.4 Change in the Electronic Work Function; 7.3 System of Differential Equations; 7.4 Results of the Simulation: Changes in the Parameters; 7.5 Summary
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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

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