

Preface

In the field of engineering, the ability of a finished part to fulfill its function in the intended application closely related properties of materials for its production. The development of new high-technology structural materials, adapted to each new application requires knowledge of base matter properties, the regularity of changes in its microstructure and properties during forming operations.

The complex microstructural phenomena (restoration, recrystallization, grain growth and etc.) have a very significant impact on the final mechanical material properties (ductility, corrosion resistance, fatigue resistance ...). From other side coatings in the form of thin films also optimize the characteristics of most parts from structural materials (steel, alloys, plastic, ceramic) and expand the area of them using.

Thin films find also a variety of applications in photovoltaics, photocatalysis, optics, nanoelectronics, etc. Using a deposition technique defines the properties of the deposited thin films for a given application.

This volume contains results of research the microstructures of materials, methods by which the latter are worked, the effect of interactions at the interfaces for multi-materials and how structure determine their final properties.

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