

Table of Contents

Preface

Theoretical, Numerical and Experimental Approaches for Structural Studies of Grain Boundaries: Methods, Remarkable Results and Perspectives

L. Priester, J. Thibault and V. Pontikis 1

On Epitaxy and Orientation Relationships in Bicrystals

P. Pirouz, F. Ernst and Y. Ikuhara 51

Dislocations, Steps and Heterophase Interfaces

S. Hagège and Y. Champion 63

Stress Field at Interfaces

G. Saada 77

The Image Force on a Dislocation in a Bicrystal: An Atomistic Simulation

J. Lépinoux and P. Beauchamp 99

Image Forces in Multilayers

J. Lépinoux 115

Coherency Strains and Stresses in Lamellar Ti-Al

P.M. Hazzledine, B. Shoykhet and M.A. Grinfeld 133

Mechanical Twinning in Semiconductors

G. Vanderschaeve 145

An In Situ Study of the Transmission of Deformation at Interfaces in Lamellar TiAl Alloys

S. Zghal, A. Coujou and A. Couret 165

Role of the γ/γ' Interface on the Mechanical Properties of Single Crystals Nickel Base Superalloys

A. Coujou, M. Benyoucef, M. Legros and N. Clément 185

Mass Transport Associated with the Motion and Interaction of Line-Defects in Interfaces

T. Nixon and R.C. Pond 201

Interfaces in Stress Corrosion Cracking: A Case Study in Duplex Stainless Steels

D. Delafosse and T. Magnin 221

Introducing Brittle-Ductile Transition and Interfacial Debonding

A. George 251

Role of Interfaces in Deformation and Fracture of Ordered Intermetallics

M.H. Yoo and C.L. Fu 273