

# Table of Contents

<b>Editors</b>	3
<b>Preface</b>	4
<b>Mechanical Anisotropy and Structure in Oriented Polymers and Composites</b>	5
<b>Crystallization and Oxidation of Heat Treated Ferromagnetic Fe-based Metallic Glasses</b>	21
<b>The Processing, Properties, and Applications of Y-Ba-Cu-O Superconductors</b>	30
<b>Significance of Microstructure in Transformation Toughening Zirconia Ceramics</b>	43
<b>Behaviour of Particle Assemblies-Relevance to Ceramic Processing</b>	61
<b>Molecular Criteria of Craze Initiation and Growth</b>	71
<b>Development of Fine Ceramic Fibres for High Temperature Composites</b>	78
<b>The Mechanical Behaviour of Shock Mitigating Foams</b>	85
<b>Mechanisms of Inelastic Deformation of Solids</b>	91
<b>Grain Refinement and Subsequent Deformation Behaviour of <math>\alpha</math>-Brass</b>	111
<b>Deformation Mechanism Maps for Poly(methyl methacrylate) and Polycarbonate</b>	117
<b>Models for Creep of Fibrous Composite Materials</b>	133
<b>Microstructural Aspects of Strengthening and Toughening of Metals, Crystalline Metallic Alloys and Semicrystalline Polymers</b>	140
<b>Structural Aspects of Alloy Carbonitride Precipitation in Microalloyed Steels</b>	166
<b>Stress-Activated Martensitic Transformation and Transformation Plasticity</b>	182
<b>Silicon Carbide Whisker Reinforced and Zirconia Transformation Toughened Ceramics</b>	194
<b>Transformation Toughened Non-Oxide Zirconia Composite Ceramics</b>	202
<b>Screw Dislocation Model for Yield in Polyethylene</b>	210
<b>Development and Potential of Advanced Fibre Composites for Aerospace Applications</b>	217
<b>Fracture Resistance and Fracture Mechanisms of Engineering Materials</b>	232
<b>Ductile and Brittle Crack Growth: Fractography, Mechanisms and Criteria</b>	268
<b>The Potential for Grain Boundary Design in Materials Development</b>	284
<b>The Influence of Residual Stress on the Toughness of Reinforced Brittle Materials</b>	304
<b>Surface Forces and Fracture in Brittle Materials</b>	313
<b>Small Angle X-Ray Scattering Studies of the Mechanisms of Failure in Polystyrene</b>	323
<b>The Micromechanics of Composite Fracture</b>	332
<b>Modelling Crack Growth in Fibre-Reinforced Cementitious Materials</b>	341
<b>Two Hundred Years of Metals in Australia</b>	352