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3.12 The Self-Consistent Scheme (SCS) and Mori-Tanaka (MT) Method for Inelastic Composites3.13 Concluding Remarks; Chapter 4 The Method of Cells Micromechanics; 4.1 The MOC for Continuously Fiber-Reinforced Materials (Doubly Periodic); 4.2 The Method of Cells for Discontinuously Fiber-Reinforced Composites (Triply Periodic); 4.3 Applications: Unidirectional Continuously Reinforced Composites; 4.4 Applications: Discontinuously Reinforced (Short-Fiber) Composites; 4.5 Applications: Randomly Reinforced Materials; 4.6 Concluding Remarks; Chapter 5 The Generalized Method of Cells Micromechanics

5.1 GMC for Discontinuous Reinforced Composites (Triple Periodicity) 5.2 Specialization of GMC to Continuously Reinforced Composites (Double Periodicity); 5.3 Applications; 5.4 Concluding Remarks; Chapter 6 The High-Fidelity Generalized Method of Cells Micromechanics; 6.1 Three-Dimensional (Triply Periodic) High-Fidelity Generalized Method of Cells with Imperfect Bonding Between the Phases; 6.2 Specialization to Double Periodicity (for Continuous Fibers, Anisotropic Constituents, and Imperfect Bonding)

6.3 Reformulation of the Two-Dimensional (Doubly Periodic) HFGMC with Debonding and Inelasticity Effects6.4 Contrast Between HFGMC and Finite Element Analysis (FEA); 6.5 Isoparametric Subcell Generalization; 6.6 Doubly Periodic HFGMC Applications; 6.7 Triply Periodic Applications; 6.8 Concluding Remarks; Chapter 7 Multiscale Modeling of Composites; 7.1 Introduction; 7.2 Multiscale Analysis Using Lamination Theory; 7.3 HyperMAC; 7.4 Multiscale Generalized Method of Cells (MSGMC); 7.5 FEAMAC; 7.6 Concluding Remarks; Chapter 8 Fully Coupled Thermomicromechanical Analysis of Multiphase Composites

8.1 Introduction

Sommario/riassunto	With composites under increasing use in industry to replace traditional materials in components and structures, the modeling of composite performance, damage and failure has never been more important. Micromechanics of Composite Materials: A Generalized Multiscale Analysis Approach brings together comprehensive background information on the multiscale nature of the composite, constituent material behaviour, damage models and key techniques for multiscale modelling, as well as presenting the findings and methods, developed over a lifetime's research, of three leading experts in