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Autore	Brinson Hal F
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Nota di contenuto	Introduction -- Stress and Strain Analysis and Measurement -- Characteristics, Applications and Properties of Polymers -- Polymerization and Classification -- Differential Constitutive Equations -- Hereditary Integral Representations of Stress and Strain -- Time and Temperature Behavior of Polymers -- Elementary Viscoelastic Stress Analysis for Bars and Beams -- Viscoelastic Stress Analysis in Two and Three Dimensions -- Nonlinear Viscoelasticity -- Rate and Time-Dependent Failure: Mechanics and Predictive Models.
Sommario/riassunto	This book provides a unified mechanics and materials perspective on polymers: both the mathematics of viscoelasticity theory as well as the physical mechanisms behind polymer deformation processes. Introductory material on fundamental mechanics is included to provide a continuous baseline for readers from all disciplines. Introductory material on the chemical and molecular basis of polymers is also included, which is essential to the understanding of the thermomechanical response. This self-contained text covers the

viscoelastic characterization of polymers including constitutive modeling, experimental methods, thermal response, and stress and failure analysis. Example problems are provided within the text as well as at the end of each chapter. New to this edition: · One new chapter on the use of nano-material inclusions for structural polymer applications and applications such as fiber-reinforced polymers and adhesively bonded structures · Brings up-to-date polymer production and sales data and equipment and procedures for evaluating polymer characterization and classification · The work serves as a comprehensive reference for advanced seniors seeking graduate level courses, first and second year graduate students, and practicing engineers .