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Nota di contenuto	Part 1. Electrical Properties of Polymer Nanocomposites under Low Electric Field -- Dielectric Constant of Polymer Composites and the Routes to High-k or Low-k Nanocomposite Materials -- Dielectric Loss of Polymer Nanocomposites and How to Keep the Dielectric Loss Low -- Electrical Conductivity and Percolation Behavior of Polymer Nanocomposites -- Positive Temperature Coefficient Effect of Polymer Nanocomposites -- Part 2. Electrical Properties of Polymer Nanocomposites under High Electric Field -- Dielectric Breakdown in Polymer Nanocomposites -- Polymer Nanocomposites for Power Energy Storage -- Part 3. Thermal properties of polymer nanocomposites -- Thermal Stability and Degradation of Polymer Nanocomposites -- Thermomechanical Analysis of Polymer Nanocomposites -- Applications of Calorimetry on Polymer Nanocomposites -- Electrically Conductive Polymer Nanocomposites with High Thermal Conductivity

-- Thermally Conductive Electrically Insulating Polymer Nanocomposites -- Polymer-Clay Nanocomposites: A Novel Way to Enhance Flame Retardation of Plasticss and Applications in Wire and Cable Industry.

Sommario/riassunto

This book focuses on the fundamental principles and recent progress in the field of electrical and thermal properties of polymer nanocomposites. The physical and chemical natures determining the electrical and thermal properties of polymer nanocomposites are discussed in detail. The authors describe the range of traditional and emerging polymer nanocomposites from nanoparticle and polymer composites to novel nanostructure based polymer nanocomposites. They include novel properties and potential applications, such as high-k, low-k, high thermal conductivity, antistatic, high voltage insulation, electric stress control, and thermal energy conversion among others.