Record Nr. UNINA9910133754103321 Autore Umantsev Alexander Titolo Field theoretic method in phase transformations / / Alexander Umantsev New York;; London,: Springer, c2012 Pubbl/distr/stampa **ISBN** 1-4614-1487-3 Edizione [1st ed. 2012.] Descrizione fisica 1 online resource (X, 344 p. 55 illus., 27 illus. in color.) Collana Lecture notes in physics, , 0075-8450 ; ; v. 840 Disciplina 530.474 Soggetti Phase transformations (Statistical physics) Field theory (Physics) Continuum mechanics Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Bibliographic Level Mode of Issuance: Monograph Nota di bibliografia Includes bibliographical references and index. Nota di contenuto Landau Theory of Phase Transitions -- Heterogeneous Equilibrium Systems -- Dynamics of Homogeneous Systems -- Evolution of Heterogeneous Systems -- Thermo-Mechanical Analogy --Thermodynamic Fluctuations -- More Complicated Systems -- Thermal Effects: Coupling to "Hydrodynamic" Variables -- Transformations in Real Materials -- Extensions of the Method. Sommario/riassunto The continuum, field theoretic method of study of phase transformations in material systems, also known as "phase field", allows one to analyze different stages of transformations on the unified platform. It has received significant attention in the materials science community recently due to many successes in solving or illuminating important problems. This book will address fundamentals of the method starting from the classical theories of phase transitions, the most important theoretical and computational results, and some of the most advanced recent applications. Field Theoretic Method in Phase Transformations can be used as an introduction for those new to the field or as a guide for a seasoned researcher. It is also of interest to

researchers interested in the history of physics.