1. Record Nr. UNINA9910811862603321 Autore Negahban Mehrdad Titolo The mechanical and thermodynamical theory of plasticity / / by Mehrdad Negahban Boca Raton, FL:,: CRC Press, an imprint of Taylor and Francis,, 2012 Pubbl/distr/stampa 0-429-10014-0 **ISBN** 1-4665-6321-4 Edizione [First edition.] Descrizione fisica 1 online resource (776 p.) Disciplina 531/.385 Soggetti **Plasticity** Continuum mechanics Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Nota di contenuto Front Cover; Dedication; Acknowledgments; Contents; Preface; 1. Plasticity in the 1-D bar; 2. Vectors and tensors; 3. Describing motion. deformation, and temperature; 4. Elastic, plastic, and thermal deformation; 5. Traction, stress, and heat flux; 6. Balance laws and jump conditions; 7. Infinitesimal plasticity; 8. Solutions for infinitesimal plasticity; 9. First-gradient thermomechanical materials; 10. Elastic and thermoelastic solids; 11. Finite deformation mechanical theory of plasticity; 12. Thermoplastic solids; 13. Viscoelastic solids; 14. Ratedependent plasticity 15. Crystal plasticityA. Representation of functions; B. Representation for fourth-order constants; C. Basic equations Sommario/riassunto Born out of 15 years of courses and lectures on continuum mechanics, nonlinear mechanics, continuum thermodynamics, viscoelasticity, plasticity, crystal plasticity, and thermodynamic plasticity, The Mechanical and Thermodynamical Theory of Plasticity represents one of the most extensive and in-depth treatises on the mechanical and thermodynamical aspects of plastic and visicoplastic flow. Suitable for student readers and experts alike, it offers a clear and comprehensive presentation of multi-dimensional continuum thermodynamics to both

aid in initial understanding and introduce and explore advanced topics.