1. Record Nr. UNINA9910455086503321

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Titolo	Mechanical behavior of materials / / William F. Hosford [[electronic resource]]
Pubbl/distr/stampa	Cambridge : , : Cambridge University Press, , 2010
ISBN	1-107-20506-9 0-511-81092-X 0-511-65836-2 0-511-65650-5 0-511-65565-7 0-511-65705-6
Edizione	[Second edition.]
Descrizione fisica	1 online resource (xv, 419 pages) : digital, PDF file(s)
Disciplina	620.1/1292
Soggetti	Materials - Mechanical properties
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Title from publisher's bibliographic system (viewed on 05 Oct 2015).
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Stress and strain -- Elasticity -- Mechanical testing -- Strain hardening of metals -- Plasticity theory -- Strain rate and temperature dependence of flow stress -- Slip and crystallographic textures -- Dislocation geometry and energy -- Dislocation mechanics -- Mechanical twinning and martenitic shear -- Hardening mechanisms in metals -- Discontinuous and inhomogeneous deformation -- Ductility and fracture -- Fracture mechanics -- Viscoelasticity -- Creep and stress rupture -- Fatigue -- Residual stresses -- Ceramics and glasses -- Polymers -- Composites -- Mechanical working -- Appendix I: Miller indices -- Appendix II: Stereographic representation of orientations.
Sommario/riassunto	This textbook fits courses on mechanical behavior of materials in mechanical engineering and materials science and includes numerous examples and problems. It emphasizes quantitative problem solving. This text differs from others because the treatment of plasticity emphasizes the interrelationship of the flow, effective strain, and effective stress and their use in conjunction with yield criteria to solve problems. The treatment of defects is new, as is the analysis of

particulate composites. Schmid's law is generalized for complex stress states. Its use with strains allows for prediction of R-values for textures. Of note is the treatment of lattice rotations related to deformation textures. The chapter on fracture mechanics includes coverage of Gurney's approach. Among the highlights in this new edition are the treatment of the effects of texture on properties and microstructure in Chapter 7, a new chapter (12) on discontinuous and inhomogeneous deformation, and the treatment of foams in Chapter 21.