1. Record Nr.	UNINA9910483778903321
Autore	Silbermann Christian B
Titolo	Introduction to geometrically nonlinear continuum dislocation theory : fe implementation and application on subgrain formation in cubic single crystals under large strains / / Christian B. Silbermann, Matthias Baitsch, Jo Ihlemann
Pubbl/distr/stampa	Cham, Switzerland : , : Springer, , [2021] ©2021
ISBN	3-030-63696-8
Edizione	[1st ed. 2021.]
Descrizione fisica	1 online resource (XIII, 94 p. 61 illus., 18 illus. in color.)
Collana	SpringerBriefs in Continuum Mechanics, , 2625-1329
Disciplina	548.842
Soggetti	Crystals - Plastic properties Continuum mechanics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Introduction -- Nonlinear kinematics of a continuously dislocated crystal -- Crystal kinetics and -thermodynamics -- Special cases included in the theory -- Geometrical linearization of the theory -- Variational formulation of the theory -- Numerical solution with the finite element method -- FE simulation results -- Possibilities of experimental validation -- Conclusions and Discussion -- Elements of Tensor Calculus and Tensor Analysis -- Solutions and algorithms for nonlinear plasticity.
Sommario/riassunto	This book provides an introduction to geometrically non-linear single crystal plasticity with continuously distributed dislocations. A symbolic tensor notation is used to focus on the physics. The book also shows the implementation of the theory into the finite element method. Moreover, a simple simulation example demonstrates the capability of the theory to describe the emergence of planar lattice defects (subgrain boundaries) and introduces characteristics of pattern forming systems. Numerical challenges involved in the localization phenomena are discussed in detail.

2.	Record Nr.	UNINA9910711380803321
	Autore	Bullard Jeffrey W
	Titolo	MicroChar : an application for quantitative analysis of cement and clinker microstructure images / / Jeffrey W. Bullard
	Pubbl/distr/stampa	Gaithersburg, MD : , : U.S. Dept. of Commerce, National Institute of Standards and Technology, , 2016
	Descrizione fisica	1 online resource (21 pages) : illustrations (color)
	Collana	NIST technical note ; ; 1876
	Altri autori (Persone)	BullardJeffrey F
	Soggetti	Building materials industry - Appropriate technology Cement Computer simulation
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Note generali	April 2016. Contributed record: Metadata reviewed, not verified. Some fields updated by batch processes. Title from PDF title page (viewed April 30, 2016).
	Nota di bibliografia	Includes bibliographical references.
	Sommario/riassunto	Accurate quantitative data on cement and clinker microstructure images can prove valuable for monitoring and controlling the manufacturing of cement-based powders. Furthermore, quantitative characterization of microstructure is an essential input to microstructure-based computer models of cementitious material processing and properties. This document describes the use and operating principles of MicroChar, a computer application for automatically calculating a range of microstructural properties from an indexed 2D image. Among the properties calculated are the volume fraction, mass fraction, and surface area fraction of each phase in the image, as well as two-point correlation functions for quantifying the spatial distribution of the phases throughout the structure. The application also enables the user to package the data obtained on cement powders for uploading to the Virtual Cement and Concrete Testing Laboratory Consortium (VCCTL) software.