

1. Record Nr.	UNINA9911009162603321
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Titolo	Continuous Dislocation Dynamics Made Simple
Pubbl/distr/stampa	Bristol : , : Institute of Physics Publishing, , 2024 ©2024
ISBN	9780750363327 9780750363310
Edizione	[1st ed.]
Descrizione fisica	1 online resource (155 pages)
Collana	IOP Ebooks Series
Altri autori (Persone)	KalaeiAlireza
Soggetti	Dislocations in crystals Materials science
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Intro -- Foreword -- Author biographies -- Alfonso Ngan -- Alireza Kalaei -- Chapter Introduction -- 1.1 Slip system and dislocations -- 1.2 Multiscale modeling of crystal plasticity and the meso-scale gap -- 1.3 CDD and why this book? -- References -- Chapter What are dislocation densities? -- 2.1 Defects and their densities -- 2.2 Fine grained dislocation density -- 2.2.1 Bundle of parallel dislocations -- 2.2.2 Sub-dislocation density-intensive dislocation microstructures -- 2.3 Coarse grained dislocation density-extensive dislocation microstructures -- 2.3.1 Geometrically necessary dislocations (GNDs) and statistically stored dislocations (SSDs) -- 2.3.2 All-dislocation density (ADD) -- 2.4 The three distinctive length scales for dislocation plasticity -- References -- Chapter Kinematics of intensive line density: evolution laws and simulation codes -- 3.1 Maxwell's kinematics law for line density -- 3.2 Other forms of Maxwell's kinematics law -- 3.2.1 Movement-tilting form -- 3.2.2 Divergence-curvature form -- 3.2.3 Finite-difference form -- 3.3 Finite-difference numerical scheme -- 3.4 Simple MATLAB codes for line-density kinematics -- 3.4.1 Setting up line and coarse-graining into density -- 3.4.2 A basic MATLAB programme for expanding circle -- 3.4.3 Further considerations for solving line-density kinematics -- References -- Chapter Dynamics of intensive line density -- 4.1 Dynamics closure by

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Sommario/riassunto

This book introduces an exact approach to continuous dislocation
 dynamics based on the "all-dislocation" density (ADD), for mesoscopic
 simulation of coarse-grained dislocation microstructures.
