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Record Nr.	UNINA9910254587303321
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Titolo	Generalized Dynamics of Soft-Matter Quasicrystals : Mathematical models and solutions / / by Tian-You Fan
Pubbl/distr/stampa	Singapore : , : Springer Singapore : , : Imprint : Springer, , 2017
ISBN	981-10-4950-5
Edizione	[1st ed. 2017.]
Descrizione fisica	1 online resource (XVI, 184 p. 54 illus., 45 illus. in color.)
Collana	Springer Series in Materials Science, , 0933-033X ; ; 260
Disciplina	530.41
Soggetti	Amorphous substances
	Complex fluids
	Physics
	Materials science
	Mechanics
	Mechanics, Applied
	Soft and Granular Matter, Complex Fluids and Microfluidics
	Mathematical Methods in Physics
	Characterization and Evaluation of Materials
	Solid Mechanics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	A brief introduction to soft matter -- Soft-matter quasicrystals and their properties -- Elasticity and hydrodynamics of solid quasicrystals -- Generalized Langevin equation -- Equation of state of structured liquid -- Poisson bracket method and equations of motion of soft-matter quasicrystals -- Dynamics of soft-matter quasicrystals with 12-fold symmetry -- Dynamics of soft-matter quasicrystals with 18-fold symmetry -- Dynamics of possible 5- and 10-fold symmetrical soft-matter quasicrystals -- Dynamics of possible soft-matter quasicrystals 8-fold symmetry -- An application to smectic-A liquid crystals, dislocation and crack -- Conclusions and remarks.
Sommario/riassunto	The book systematically introduces the mathematical models and solutions of generalized hydrodynamics of soft-matter quasicrystals (SMQ). It provides methods for solving the initial-boundary value

problems in these systems. The solutions obtained demonstrate the distribution, deformation and motion of the soft-matter quasicrystals, and determine the stress, velocity and displacement fields. The interactions between phonons, phasons and fluid phonons are discussed in some fundamental materials samples. Mathematical solutions for solid and soft-matter quasicrystals are compared, to help readers to better understand the featured properties of SMQ.