1. Record Nr. UNINA9910830953103321

Autore	Kosevich Arnold Markovich
Titolo	The crystal lattice [[electronic resource]] : phonons, solitons, dislocations, superlattices / / Arnold M. Kosevich
Pubbl/distr/stampa	[Berlin ; ; New York], : Wiley-VCH, c2005
ISBN	1-280-85403-0 9786610854035 3-527-60693-9
Edizione	[2nd ed.]
Descrizione fisica	1 online resource (359 p.)
Disciplina	548.81
Soggetti	Crystal lattices
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references (p. [341]-342) and index.
Nota di contenuto	The Crystal Lattice; Contents; Prefaces; Part 1 Introduction; 0 Geometry of Crystal Lattice; 0.1 Translational Symmetry; 0.2 Bravais Lattice; 0.3 The Reciprocal Lattice; 0.4 Use of Penetrating Radiation to Determine Crystal Structure; 0.4.1 Problems; Part 2 Classical Dynamics of a Crystal Lattice; 1 Mechanics of a One-Dimensional Crystal; 1.1 Equations of Motion and Dispersion Law; 1.1.1 Problems; 1.2 Motion of a Localized Excitation in a Monatomic Chain; 1.3 Transverse Vibrations of a Linear Chain; 1.4 Solitons of Bending Vibrations of a Linear Chain; 1.5 Dynamics of Biatomic 1D Crystals 1.6 Frenkel-Kontorova Model and sine-Gordon Equation1.7 Soliton as a Particle in 1D Crystals; 1.8 Harmonic Vibrations in a 1D Crystal Containing a Crowdion (Kink); 1.9 Motion of the Crowdion in a Discrete Chain; 1.10 Point Defect in the 1D Crystal; 1.11 Heavy Defects and 1D Superlattice; 2 General Analysis of Vibrations of Monatomic Lattices; 2.1 Equation of Small Vibrations of 3D Lattice; 2.2 The Dispersion Law of Stationary Vibrations; 2.3 Normal Modes of Vibrations; 2.4 Analysis of the Dispersion Law; 2.5 Spectrum of Quasi-Wave Vector Values; 2.6 Normal Coordinates of Crystal Vibrations 2.7 The Crystal as a Violation of Space Symmetry2.8 Long-Wave Approximation and Macroscopic Equations for the Displacements Field; 2.9 The Theory of Elasticity; 2.10 Vibrations of a Strongly Anisotropic Crystal (Scalar Model); 2.11 "Bending" Waves in a Strongly Anisotropic

Crystal; 2.11.1 Problem; 3 Vibrations of Polyatomic Lattices; 3.1 Optical Vibrations; 3.2 General Analysis of Vibrations of Polyatomic Lattice; 3.3 Molecular Crystals; 3.4 Two-Dimensional Dipole Lattice; 3.5 Optical Vibrations of a 2D Lattice of Bubbles; 3.6 Long-Wave Librational Vibrations of a 2D Dipole Lattice
3.7 Longitudinal Vibrations of 2D Electron Crystal3.8 Long-Wave Vibrations of an Ion Crystal; 3.8.1 Problems; 4 Frequency Spectrum and Its Connection with the Green Function; 4.1 Constant-Frequency Surface; 4.2 Frequency Spectrum of Vibrations; 4.3 Analysis of Vibrational Frequency Distribution; 4.4 Dependence of Frequency Distribution on Crystal Dimensionality; 4.5 Green Function for the Vibration Equation; 4.6 Retarding and Advancing Green Functions; 4.7 Relation Between Density of States and Green Function; 4.8 The Spectrum of Eigenfrequencies and the Green Function of a Deformed Crystal
4.8.1 Problems5 Acoustics of Elastic Superlattices: Phonon Crystals; 5.1 Forbidden Areas of Frequencies and Specific Dynamic States in such Areas; 5.2 Acoustics of Elastic Superlattices; 5.3 Dispersion Relation for a Simple Superlattice Model; 5.3.1 Problem; Part 3 Quantum Mechanics of Crystals; 6 Quantization of Crystal Vibrations; 6.1 Occupation-Number Representation; 6.2 Phonons; 6.3 Quantum-Mechanical Definition of the Green Function; 6.4 Displacement Correlator and the Mean Square of Atomic Displacement; 6.5 Atomic Localization near the Crystal Lattice Site
6.6 Quantization of Elastic Deformation Field

Sommario/riassunto

The aim of this successful book is to describe and analyse peculiarities of classical and quantum dynamics of a crystal as a spatially periodic structure. In the second revised and updated edition, the author focuses on low-dimensional models of crystals and on superlattices. Both traditional questions like the spectrum of vibrations, the idea of phonon gas, dislocations etc. and new aspects like the theory of quantum crystals, solitons in 1D crystals, dislocation theory of melting of 2D crystals etc. are discussed. The author gives an explanation of a set of phenomena which entered into solid

2. Record Nr. UNISA996207127003316

Titolo	Amnesty International : the magazine of Amnesty International USA
Pubbl/distr/stampa	New York, NY, : Amnesty International USA, 2004-
ISSN	1936-3699
Soggetti	Political prisoners Human rights Civil rights Torture Amnesty Liberty Conscientious objectors Periodicals.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Periodico
Note generali	Title from title screen (viewed June 13, 2006).