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   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

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