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Nota di contenuto	Organic Molecular Solids; Contents; 1 Introduction; 1.1 What are Organic Solids?; 1.2 What are the Special Characteristics of Organic Solids?; 1.3 Goals and Future Outlook; Problems for Chapter 1; Literature; 2 Forces and Structures; 2.1 Forces; 2.1.1 Inductive Forces; 2.1.2 Van der Waals Forces; 2.1.3 Repulsive Forces; 2.1.4 Intermolecular Potentials; 2.1.5 Coulomb Forces; 2.2 Structures; 2.2.1 Crystals of Nonpolar Molecules; 2.2.2 Crystals of Molecules with Polar Substituents; 2.2.3 Crystals with a Low Packing Density, Clathrates 2.2.4 Crystals of Molecules with Charge Transfer, Radical-ion Salts2.3 Polymer Single Crystals: Diacetylenes; 2.4 Thin Films; 2.5 Inorganic-Organic Hybrid Crystals; Problems for Chapter 2; Literature; 3 Purification of Materials, Crystal Growth and Preparation of Thin Films; 3.1 Purification; 3.2 Highest Purity; 3.3 Crystal Growth; 3.4 Mixed Crystals; 3.5 Epitaxy, Ultrathin Films; Problems for Chapter 3; References; 4 Impurities and Defects; 4.1 Foreign Molecules, Impurities,

and X traps; 4.2 Structural Defects; 4.2.1 Point Defects; 4.2.2 Dislocations; 4.2.3 Grain Boundaries
4.2.4 Dipolar Disorder4.3 Characterisation and Analysis of Impurities; 4.4 Characterisation of Defects; Literature; 5 Molecular and Lattice Dynamics in OrganicMolecular Crystals; 5.1 Introduction; 5.2 Intramolecular Vibrations; 5.3 Phonons; 5.3.1 The Eigenvector; 5.3.2 The Wavevector; 5.3.3 The Frequencies (K); 5.3.4 Excitations; 5.4 Experimental Methods; 5.4.1 Inelastic Neutron Scattering; 5.4.2 Raman Scattering and Infrared Absorption; 5.5 The 12 External Phonons of the Naphthalene Crystal; 5.5.1 Dispersion relations; 5.5.2 Pressure and Temperature Dependencies
5.6 Analytic Formulation of the Lattice Dynamics in Molecular Crystals5.7 Phonons in other Molecular Crystals; 5.8 Hindered Rotation and Diffusion; 5.8.1 Nuclear Magnetic Resonance (NMR): the Second Moment of the Line shape and Nuclear Spin-Lattice Relaxation; 5.8.2 Benzene Crystals; 5.8.3 Methyl Groups; 5.8.4 Diffusion; Problems for Chapter 5; References; 6 Electronic Excited States, Excitons,Energy Transfer; 6.1 Introduction; 6.2 Some historical remarks: differences between the spectra of molecules in a crystal and free molecules; 6.3 Optical Excited States in Crystals
6.4 Davydov Splitting and Mini-Excitons6.5 Frenkel Excitons; 6.5.1 Excitonic States, Fundamental Equations; 6.5.2 Polarisation and Band Structure; 6.5.3 Coherence; 6.6 Charge Transfer (CT) Excitons; 6.7 Surface Excitons; 6.8 Excimers; 6.9 Exciton Processes, Energy Conduction; 6.9.1 Sensitised Fluorescence; 6.9.2 Delayed Fluorescence by Triplet Excitons; 6.9.3 Excitonic Processes; 6.10 Excitonic Processes in other Systems; 6.11 Future Developments; Problems for Chapter 6; Literature; 7 Structure and Dynamics of Triplet States; 7.1 Introduction and Historical Remarks
7.2 Spin Quantisation in Triplet States

Sommario/riassunto

This is the first comprehensive textbook on the physical aspects of organic solids. All phenomena which are necessary in order to understand modern technical applications are being dealt with in a way which makes the concepts of the topics accessible for students. The chapters - from the basics, production and characterization of organic solids and layers to organic semiconductors, superconductors and opto-electronical applications - have been arranged in a logical and well thought-out order.