

Structure and Dynamics: An Atomic View of Materials; 334 pages; 2003; 9780198506782; Martin T. Dove, Martin T Dove; OUP Oxford, 2003

'Structure and Dynamics' is a superbly planned and written book, with carefully selected material and well-chosen examples. [...] Most of the material is given at a remarkable level of simplicity. It is characterised by deep insight, ease of style, and great pedagogical value. It can be equally useful to students and teachers, and has every reason to become a classical book in its field.' Dr. Artem Oganov, University College London. About the Author. I particularly purchased this book for the second half since the authors advanced text on lattice dynamics is very costly. The only negative comment I have is that occasionally the author allows for some ambiguity in the arrival of equations. The problems at the end of the chapter are very nice and the solutions are also provided. The dual focus is on the structures of materials at an atomic level and on how the atoms vibrate inside solids. This dual focus comes together to explore how the atomic principles determine the behaviour and properties of materials. Attention is also given to experimental methods. This is a nice book to have on your bookshelf if your involved or interested in crystalline materials and thermal properties (more specifically phonons). The text is essential two parts, the first which covers basic crystallography and bonding and then the second discusses, in detail, lattice vibrations theory and measurements. I particularly purchased this book for the second half since the authors advanced text on lattice dynamics is very costly. View cart. Login. Manage Account. His scientific interests include structural modeling of advanced materials, nonlinear wave dynamics of microstructured solids, and acoustic testing of microstructured materials. He has published 26 papers indexed by Scopus and WoS. He is a member of the Russian Acoustical Society and the Russian National Committee on Theoretical and Applied Mechanics. Bibliographic Information. Book Title. Nonlinear Wave Dynamics of Materials and Structures. Editors. Holm Altenbach. Benefits of donating. When you donate a physical book to the Internet Archive, your book will enjoy: Beautiful high-fidelity digitization. Long-term archival preservation. Free controlled digital library access by the print-disabled and public. Open Library is a project of the Internet Archive, a 501(c)(3) non-profit. Not in Library. Want to Read. An edition of STRUCTURE AND DYNAMICS: AN ATOMIC VIEW OF MATERIALS. Structure and dynamics: an atomic view of materials. by MARTIN T. DOVE. 0 Ratings. Preface 1. Introduction 2. Structure of materials 3. Formal description of crystal structures 4. The reciprocal lattice 5. Atomic bonding in crystals 6. Diffraction 7. Physical properties 8. Lattice dynamics 10. Experimental methods for measurements of vibrational frequencies 11. Anharmonic interactions 12. Displacive phase transitions A. Real crystals! B. Fourier analysis C. Schoenflies representation of the point groups D. Rhombohedral, trigonal and hexagonal unit cells E. Space groups F. Lattice energy minimization G. Some note on the variational theorem H. Ewald Sphere I. The Wilson Plot J