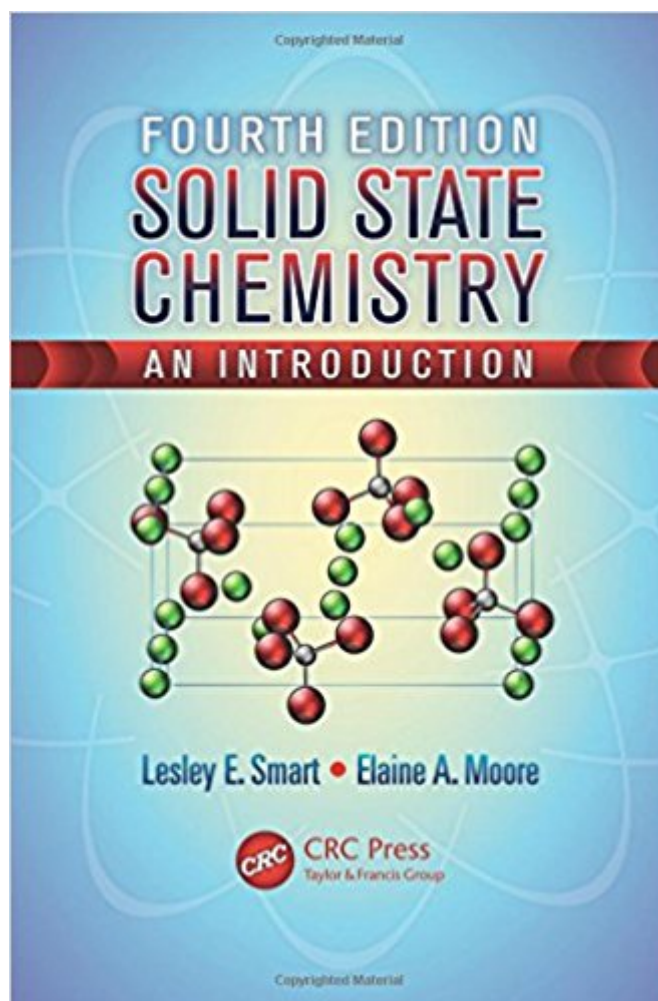


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# Solid State Chemistry: An Introduction, Fourth Edition



## Synopsis

Building a foundation with a thorough description of crystalline structures, *Solid State Chemistry: An Introduction*, Fourth Edition presents a wide range of the synthetic and physical techniques used to prepare and characterize solids. Going beyond basic science, the book explains and analyzes modern techniques and areas of research. The book covers: A range of synthetic and physical techniques used to prepare and characterize solids Bonding, superconductivity, and electrochemical, magnetic, optical, and conductive properties STEM, ionic conductivity, nanotubes and related structures such as graphene, metal organic frameworks, and FeAs superconductors Biological systems in synthesis, solid state modeling, and metamaterials This largely nonmathematical introduction to solid state chemistry includes basic crystallography and structure determination, as well as practical examples of applications and modern developments to offer students the opportunity to apply their knowledge in real-life situations and serve them well throughout their degree course. New in the Fourth Edition Coverage of multiferroics, graphene, and iron-based high temperature superconductors, the techniques available with synchrotron radiation, and metal organic frameworks (MOFs) More space devoted to electron microscopy and preparative methods New discussion of conducting polymers in the expanded section on carbon nanoscience

## Book Information

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## Customer Reviews

"Smart and Moore are engaging writers, providing clear explanations for concepts in solid-state

chemistry from the atomic/molecular perspective. The fourth edition is a welcome addition to my bookshelves. | What I like most about Solid State Chemistry is that it gives simple clear descriptions for a large number of interesting materials and correspondingly clear explanations of their applications. Solid State Chemistry could be used for a solid state textbook at the third or fourth year undergraduate level, especially for chemistry programs. It is also a useful resource for beginning graduate students in materials chemistry, physics and engineering programs, and for materials researchers at all levels of experience." •Mary Anne White, Dalhousie University, Halifax, Canada, Journal of Materials Education Vol. 35, 2013

Lesley Smart studied Chemistry at Southampton University, UK and after completing a Ph.D. in Raman spectroscopy, she moved to a lectureship at the (then) Royal University of Malta. After returning to the United Kingdom, she took an SRC Fellowship to Bristol University to work on X-ray crystallography. From 1977-2009 she worked at the Open University Chemistry Department as a Lecturer, Senior Lecturer and Molecular Science Programme Director, and since retiring holds an honorary senior lectureship there. At the Open University, she was involved in the production of undergraduate courses in inorganic and physical chemistry and health sciences. She was the coordinating editor and an author of The Molecular World course, a series of eight books and DVDs co-published with the Royal Society of Chemistry, authoring two of these (2002), The Third Dimension and Separation, Purification and Identification. Her most recent books are (2007) Alcohol and Human Health and (2010) Concepts in Transition Metal Chemistry. She has an entry in Mothers in Science: 64 ways to have it all (downloadable from the Royal Society website). She has served on the Council of the Royal Society of Chemistry and as the Chair of their Benevolent Fund. Her research interests are in the characterization of the solid state, and she has publications in single-crystal Raman studies, X-ray crystallography, zintl phases, pigments, and heterogeneous catalysis and fuel cells. Elaine Moore studied Chemistry as an undergraduate at Oxford University and then stayed on to complete a D.Phil in Theoretical Chemistry with Peter Atkins. After a two-year post-doctoral position at Southampton, she joined The Open University in 1975 as Course Assistant, becoming a Lecturer in Chemistry in 1977, Senior Lecturer in 1998, and Reader in 2004. She has produced OU teaching texts in Chemistry for Courses at levels 1, 2, and 3 and written texts in Astronomy at level 2 and Physics at level 3. She is co-author of Metal-Ligand Bonding, and the text Molecular Modelling and Bonding, which forms part of the OU level 2 Chemistry Course, was co-published by the Royal Society of Chemistry as part of The Molecular World series. She oversaw the introduction of multimedia into chemistry courses and has designed multimedia material at

levels 1, 2 and 3. She is co-author of Metals and Life and of Concepts in Transition Metal Chemistry, which are part of a level 3 Open University Course in Inorganic Chemistry and co-published with the Royal Society of Chemistry. Her research interests are in theoretical chemistry applied to solid state systems and to NMR spectroscopy. She is author or co-author on over 50 papers in scientific journals.

I had the 3rd edition as well as many other solid state chemistry books but the 4th edition is very modern as compared to other later editions of book. It has solutions to all problems which is different to the 3rd edition which had solutions to selected problem. I like the way the book is written. It is a very good book for undergraduate and graduate students who are new to solid state and continuing students. I will highly recommend this book.

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