This is an extremely valuable series of books for the experimental researcher; a definite purchase for their library.

The Editor's Desk

Electron Correlations in Molecules and Solids, by Peter Fulde (Springer Series in Solid-State Sciences, Vol. 100, edited by Helmut K.V. Lotsch, M. Cardona, P. Fulde, et al.) Springer-Verlag, Heidelberg, 1991, DM 98.00. ISBN 3-540-53623-X.

This book is written to the high quality standards typical of the *Springer Series in Solid-State Science*, and provides valuable instruction and reference to the rapidly growing field of solid-state computational chemistry.

The first third of the book is dedicated to the introduction and development of the basic formalisms most commonly employed in the quantum mechanical description of molecules. Throughout these opening discussions are parallel descriptions contrasting methods based on the limits of weak electron correlation (Hartree–Fock approach) and strongly correlated electrons (Heitler–London). The reader is taken, fairly rigorously, from basic principles through local spin density and post-Hartree–Fock methods. Included in the discussions are ab initio and semiempirical methods, density functional theory (Thomas–Fermi, Hohenberg–Kohn–Sham, X-alpha, LDA, LSD), configuration interaction, multireference CI, coupled-cluster methods, and many-body perturbation theory.

The latter two-thirds of the book then expands into the area of semiconductors, homogeneous and mixed metallic systems, magnetic properties of solids, electrical conductivity and superconductivity (describing conventional BCS theory as well as theories of the new high-Tc superconductors). Calculated molecular and solid-state properties are frequently compared between methods and with experimental data. The book is well-written and topics are covered in-depth, although the uninitiated may find it mathematically somewhat intensive.

Finally, an extensive up-to-date bibliography is included, and should provide a valuable resource for anyone involved in, or becoming involved in solid-state computational chemistry.

Professor Fulde is to be commended on a contribution which will, deservingly, enjoy wide readership.

W. J. Pietro
