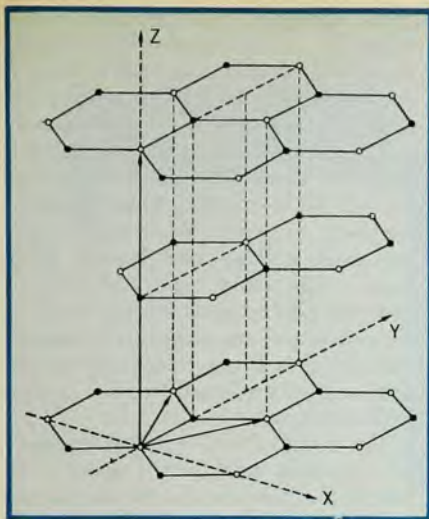




Three-dimensional form of graphite crystal

that no discussion of spatial dispersion effects is given. The treatment of second-class spectra in Cu_2O does not mention important anisotropy effects due to the quadrupole nature of the transitions analyzed by the late E. F. Gross and his Leningrad collaborators, S. Nikitine and his coworkers at Strassbourg and Roger J. Elliott, among others. The book concludes with a useful discussion of optical effects of impurity states and the effect of external perturbations.

In my opinion this monograph will be useful as an intermediate-level text for graduate students and research workers with an interest in symmetry and optical properties of crystals due to electronic transitions. The book provides a good overview, much detail and some theoretical framework, which permits fairly rapid access to the current literature.

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Infrared Detectors

R. D. Hudson, Sr, J. W. Hudson, eds.
392 pp. Halsted, New York, 1975. \$26.00

This reprint book contains 43 papers, some dating as far back as 1946, others as recent as 1973. Some are review papers, others are research papers. Papers on infrared detectors fall into two broad categories: those concerned with the physics of the devices and those concerned with properties and characteristics, written for the detector user. Here there appears to be an emphasis on papers for the detector user, although there is a liberal sprinkling of papers on detector physics.

The editors have grouped the papers into several sections: characteristics of

currently available detectors, fundamentals of infrared detection, photon detectors, thermal detectors, ultimate limit of detector performance and techniques for cooling detectors. Each section contains editorial comments that include some history as well as personal touches about the various authors. These comments help put the papers in their proper perspective. In addition, the editors add references—some as recent as 1975—which uptake the papers in each particular section.

While infrared detectors have been in use since the early 1800's when this part of the spectrum was discovered, most significant advances were made in the past 30 years. This recent growth was due to a realization that infrared detectors could prove useful for many military applications. Only during the past few years has their real potential been realized for medical, astronomical, geophysical and industrial use.

Most research workers in the field undoubtedly have reprints of many of the papers and others to fill their particular need. For them this book consolidates many reprints, but above all it provides an author index to the literature as well as a very complete list of references. For the person who is either entering the field or simply would like to know more about it, the book provides a valuable collection of carefully selected reprints and references that would be very cumbersome to compile. In addition it gives him an understanding of how this field has developed, and of many of the people who have been and are active—it gives him a "flavor" of the field he could not easily get any other way.

Perhaps one weakness of the book is inherent in the reproduction techniques. Some of the papers had to be reproduced from journals with larger pages; so the print for these papers becomes rather small. This situation could easily be improved, if a Fresnel lens were added to the jacket.

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Molecular Collision Theory

M. S. Child
300 pp. Academic, New York, 1974. \$22.00

Molecular Collision Theory, which marks the extension of scattering theory to the inelastic and reactive molecular collisions of the semiclassical (short-wavelength) limiting theory so useful in atomic and nuclear physics, is itself a remarkable achievement: a book on scattering theory that is concise and well written. The new collision theory



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