

shifts corresponding to their angle of incidence. Beyond the point where evanescent waves count, Fresnel diffraction consists merely of a systematic rearrangement of the Fourier components without change of amplitude. Naturally each pattern on each successive plane thus has the same spatial autocorrelation function, a simplicity that is not as readily apparent from the Huyghens approach to diffraction. The discussion passes easily over into Fraunhofer diffraction, where each nonevanescant spatial frequency in the aperture is sorted out ultimately into one direction (its incident direction). Much discussion about lenses, imaging and coherent and incoherent light then ensues with interpretation in terms of linear filters. Finally, an appendix on elementary geometrical optics helpfully exposes the arcane nomenclature that distinguishes the expert from those who do not know the difference between an aperture stop and an exit pupil.

Numerous problems and literature references accompany each chapter. Originating from a distinguished center of optical knowledge, this book will prove welcome in courses on optical design or for self study and will contain much of interest for readers in other fields where two-dimensional images are treated.

RONALD N. BRACEWELL
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book notes

Collision Spectroscopy. R. G. Cooks, ed. 458 pp. Plenum, New York, 1978. \$44.50

Collision Spectroscopy, according to its dustjacket description, "focuses on the underlying unity of disparate studies of mass spectrometrists concerned with the structures of organic ions, those of chemical physicists concerned with inelastic collisions of simple species, and those of physicists on the theory of atomic collisions." The chapters are generally arranged in order of increasing complexity—atomic, diatomic and polyatomic systems and collisions involving excitation, charge change and dissociative excitation.

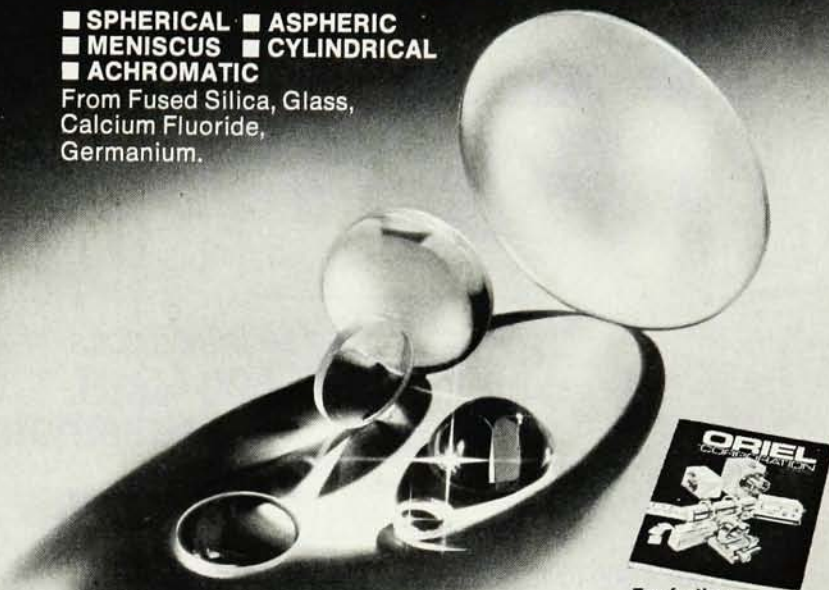
Cosmic Dust, J. A. M. McDonnell, ed. 693 pp. Wiley-Interscience, New York, 1978. \$67.00

Cosmic Dust is a up-to-date review of the major fields of study of solid matter in the solar system and the galaxy. Thus the book contains chapters on comets, zodiacal light (an indicator of interplanetary dust), meteors, interstellar dust and lunar and planetary impact erosion. Additional chapters cover microparticle

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Atomic Scattering Theory: Mathematical and Computational Aspects (Proc. of a conf., Univ. of Western Ontario, London, June 1978). J. Nuttall, ed. 221 pp. Univ. of Western Ontario, London, Canada, 1978. \$6.00

Picosecond Phenomena (Proc. of the First Int. Conf., Hilton Head, S.C., May 1978) (Series in Chemical Physics, Vol. 4). C. V. Shank, E. P. Ippen, S. L. Shapiro, eds. 359 pp. Springer-Verlag, New York, 1978. \$29.50

Applications of Polymer Spectroscopy. E. G. Brame Jr, ed. 289 pp. Academic, New York, 1978. \$29.50

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The Optics of Nonimaging Concentrators: Light and Solar Energy. W. T. Welford, R. Winston. 200 pp. Academic, New York, 1978. \$22.50

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Electricity, Magnetism and Fields

1978 INTERMAG Conference (Proc., Florence, Italy, May 1978) (*IEEE Transactions on Magnetics*, Vol. MAG-14, No. 5). M. S. Cohen, ed. 831 pp. Institute of Electrical and Electronic Engineers, New York, 1978. \$17.50 for IEEE members, \$35.00 for nonmembers

Quantum Electronics and Lasers

Laser Beam Information Systems. W. C. House, ed. 147 pp. PBI-Petrocelli, Princeton, N.J. (US distributor: McGraw-Hill, New York), 1978. \$15.00

Laser Safety Handbook. A. Mallow, L. Chabot, 353 pp. Van Nostrand Reinhold, New York, 1978. \$22.50

The Physics of Gas Lasers (Documents on Modern Physics Series). W. R. Bennett Jr. 214 pp. Gordon and Breach, New York, 1977. \$27.50

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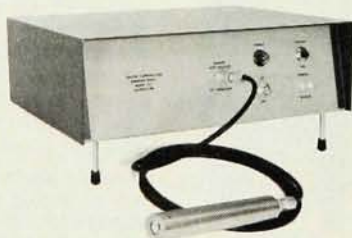
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