

## Book Review

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*Laser Handbook*, Vol. 3, edited by M. L. Stitch, published by North-Holland Publishing Co., Amsterdam, 1979; 869 pp.; price \$122.00.

One of the aspirations of the founding editors, as outlined in the introduction to the earlier volumes of this series (published in 1972), was that the collection of expository articles contained in Volumes 1 and 2 of the *Laser Handbook*, on laser technology and the applications of lasers respectively, should provide a sufficiently extensive survey of the relevant background to the subject that it would be possible for subsequent publications in the series to take the form of relatively short complementary supplements. In the event, however, and as a testament to the continued rapid progress within this field, Volume 3 has now appeared with a format and length very similar to that of its two predecessors.

Part A, the first and somewhat shorter part of the volume, is devoted to a series of monographs under the general heading of "Laser technology" and contains detailed surveys of a number of specific laser types including waveguide gas lasers, electrically excited CO lasers, excimer lasers and pulsed dye lasers as well as a wide-ranging review of chemical laser systems produced through both chemical reaction and photodissociation processes.

Part B comprises the remainder of the volume and is entitled "Laser applications". The opening two articles, on bandwidth-limited ultrashort pulse generation and efficient second harmonic generation (frequency doubling) respectively, are, however, concerned largely with technological considerations. There follows a lengthy section entitled "Laser-induced chemical reactions and isotope separation" which, in fact, is primarily concerned with a theoretical description of the mechanism whereby polyatomic molecules in general, and SF<sub>6</sub> in particular, can dissociate following the multiple photon absorption of intense IR laser radiation. Moreover, as a result of the numerous recent advances in the field of IR laser chemistry, this article more than most has suffered from the considerable, though largely inevitable, time delay between submission and publication in a volume of this size. Three further reviews comprise the remainder of part B; these deal respectively with recent developments in the field of pulsed holography, with energy storage media having potential application in laser fusion studies and, finally, with continuous picosecond spectroscopy as a means of studying photophysical processes in large organic molecules, and especially dyes, in solution.

Volume 3 of the *Laser Handbook* maintains the exacting scientific and bibliographical standards set by the two earlier volumes; this quality is reflected in its price. This, together with the somewhat multidisciplinary

nature of the articles contained within, is likely to restrict sales of this valuable reference book to the larger scientific libraries. From the individual's viewpoint, therefore, the case for publishing future volumes of the Laser Handbook in the form of smaller, more closely interrelated texts on particular aspects of the laser field is now perhaps even stronger than in 1972.

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