

Book Review

Laser Spectroscopy IV: Proceedings of the Fourth International Conference, Rottach-Egern, F.R.G., 1979, edited by H. Walther and K. W. Rothe, published by Springer Verlag, Berlin, 1979; 650 pp.; price \$46.20.
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The maturity and continued rapid growth of the field of laser spectroscopy is well indicated by the large number of contributions, their high quality and their scope in this volume. The widely varying coverage of this field in different countries is also very striking, with by far the largest number of contributions coming from the F.R.G. and the U.S.A. By contrast, the number of offerings from Gt. Britain was meagre, probably reflecting reduced funding in that country of research and travel budgets.

Many of the papers lie outside the field dealt with by the *Journal of Photochemistry*. However, a number of these papers are nevertheless of interest to physical photochemists in indicating new techniques that may ultimately be feasible when applied to chemically significant species.

On the other hand, a number of papers are of direct significance in physical photochemistry. The content of a brief sampling of these papers may be useful to potential readers. In the section on fundamental physical applications of laser spectroscopy, Hänsch's group at Stanford review current and future ideas in Doppler-free spectroscopy of the hydrogen atom. The possible excitation of atomic fluorescence by two-photon absorption, not only of hydrogen but also of other light atoms, is of great interest to photochemical kineticists. A substantial part of the conference was devoted to multiphoton processes in atoms and in molecules. I found the contribution from Welge and coworkers (Bielefeld University) particularly interesting. These workers describe photofragment spectroscopy of CH_3NH_2 and NO_2 , in which both the vibrational and the rotational energy of the fragments (NH_2 , NO) were completely determined using laser-induced fluorescence. In the case of NO_2 photolysis at 337 nm, the vibrational and rotational populations of the NO product were found to be strongly inverted. C. B. Moore and coworkers (Berkeley) describe new studies of multiphoton dissociation, with particular reference to $\text{C}_2\text{H}_5\text{Cl}$, D_2CO and C_2H_4 . In another section of the volume, Harris and coworkers (Stanford) review recent progress on laser-induced collisions and laser-induced spontaneous emission.

There is much else in the volume that will interest readers. It is a well-produced book and the editors have taken pains to obtain an excellent record of a conference of very high scientific quality.