Fundamental Processes in Radiation Chemistry. Edited by P. Ausloos, John Wiley and Sons, Inc., New York, N. Y. (1968).   753 + IX pages. $24.00

It is a pleasure to review a book edited by an outstanding researcher—there are more references to Dr. Ausloos' papers than to any other individual—with chapters by acknowledged authorities who critically and clearly summarize recent research in selected topics in radiation chemistry.   The editor has presented the views and styles of the authors with no suggestion of the difficulties one has come to expect in an edited volume.

In 10 chapters the authors describe a number of important facets of the field: energy deposition mechanisms, fragmentation processes, and gas, liquid, and solid phase reactions.   The treatment is fairly advanced, so that maximum usefulness will be realized by the reader familiar with quantum chemistry, spectroscopy, and statistical mechanics—subjects important to the serious worker in the field.

The section "Radiation Induced Polymerization" emphasizes kinetics and mechanisms of the homopolymerization of ethylene, isobutene, acrylamide, styrene, and cyclopentadiene—all systems for which much data are reported.   Polymer chemists will benefit from the physical chemical approach to radiation polymerization: a more or less detailed presentation is given of primary processes that occur in spurs within 10^{-7} sec after impact, and which lead to the radicals and ions responsible for polymerization. Unfortunately, the author omits, for the several valid reasons of space and personal interests, the especially interesting topics of copolymerization kinetics, polymerization of crystalline monomers, polymerization in the glassy state, radiation effects on macromolecules, and biological systems.

This volume is a valuable addition to the literature for a combination of reasons: it is a readable, informative, and authoritative presentation of the status of radiation chemistry.

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