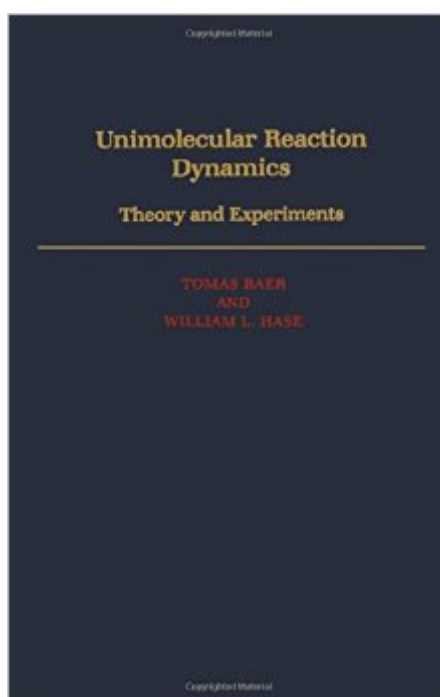


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Unimolecular Reaction Dynamics: Theory And Experiments (International Series Of Monographs On Chemistry)



Synopsis

This book provides a penetrating and comprehensive description of energy selected reactions from a theoretical as well as experimental view. Three major aspects of unimolecular reactions involving the preparation of the reactants in selected energy states, the rate of dissociation of the activated molecule, and the partitioning of the excess energy among the final products, are fully discussed with the aid of 175 illustrations and over 1,000 references, most from the recent literature. Examples of both neutral and ionic reactions are presented. Many of the difficult topics are discussed at several levels of sophistication to allow access by novices as well as experts. Among the topics covered for the first time in monograph form is a discussion of highly excited vibrational/rotational states and intramolecular vibrational energy redistribution. Problems associated with the application of RRKM theory are discussed with the aid of experimental examples. Detailed comparisons are also made between different statistical models of unimolecular decomposition. Both quantum and classical models not based on statistical assumptions are described. Finally, a chapter devoted to the theory of product energy distribution includes the application of phase space theory to the dissociation of small and large clusters. The work will be welcomed as a valuable resource by practicing researchers and graduate students in physical chemistry, and those involved in the study of chemical reaction dynamics.

Book Information

Series: International Series of Monographs on Chemistry (Book 31)

Hardcover: 448 pages

Publisher: Oxford University Press; 1 edition (June 27, 1996)

Language: English

ISBN-10: 0195074947

ISBN-13: 978-0195074949

Product Dimensions: 6.5 x 1.3 x 9.6 inches

Shipping Weight: 1.4 pounds (View shipping rates and policies)

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For whom is interested in study the unimolecular reaction dynamics in very detail, this is a nice

book. Classical dynamics, quantum chemistry, and some physics, computational knowledge are required.

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