

BOOK REVIEW

Analysis of Kinetic Models of Chemical Reaction Systems. *Value Approach*

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This subject of this book is the systematic analysis of kinetic models of complex reactions, with emphasis on chain reactions. The intent of the authors is to provide the conceptual background for the use of numerical models to evaluate molecular kinetic data in terms of mechanistic schemes. The book concludes with an explanation of the kinetics software package, VALKIN.

Certainly the book is suitable only for those with some advanced knowledge in the kinetics field, primarily graduate students and research faculty, as there is a fairly high level of sophistication assumed in the methodologies, but the clarity and detail of the monograph should make it of considerable use to those readers. There is a full and clear development of the mathematical models in general terms and several chapters apply these models to specific examples including ozone kinetics, multi-centered chain reactions and studies of inhibition, liquid phase oxidation of various organics and studies of inhibition, and non-linear oscillating reactions.

The book's emphasis is on generalization of kinetic models and it focuses on a Hamiltonian systematization of reaction mechanisms as a basis for understanding the kinetic significance of the individual species and reactions of a kinetic mechanism. The numerical value of these is calculated as a function of various inputs and used to determine those items most relevant to a particular experimental situation, such as rates of formation and loss of species. The approach has potential for use in a variety of applications, including biochemical reactions, although these are not discussed, and provides a good solid background for researchers interested in applying these approaches to their systems.

Review provided by Frederick T. Greenaway, Professor of Chemistry, Clark University, Worcester, MA.