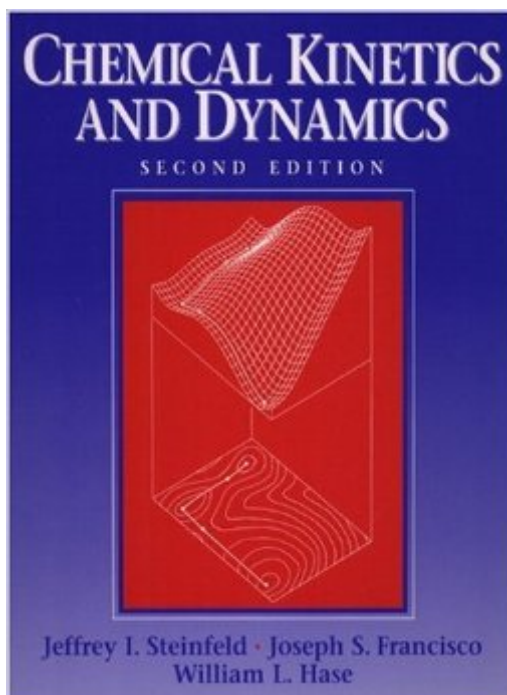


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Chemical Kinetics And Dynamics (2nd Edition)



Synopsis

Presents a balanced presentation of the macroscopic view of empirical kinetics and the microscopic molecular viewpoint of chemical dynamics. Stressing interconnections between phenomenological chemical kinetics and molecular reaction dynamics, the book discusses reactions in gas phase, liquids, and at surfaces; molecular potential surfaces; gas-gas and gas-surface theories applied to reactive collisions. It features applications to atmospheric chemistry, combustion, and chemical lasers as well as multiple methods for solving kinetic equations. It also addresses topics not found in other books: Information theory, Stochastic simulation, and Sensitivity analysis. The second edition of Chemical Kinetics and Dynamics has been revised to include the latest information as well as new topics, such as heterogeneous reactions in atmospheric chemistry, reactant product imaging, and molecular dynamics of $\text{H} + \text{H}_2$. It provides an experimental observation of the transition state ("Femtochemistry"); new treatment of stratospheric chemistry, including heterogeneous processes, balance among catalytic cycles, environmental consequences, and policy implications as well as current database information on NIST kinetics as well as JPL evaluations. A valuable resource on kinetics for professional atmospheric kineticists and chemical engineers.

Book Information

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Customer Reviews

Steinfeld's book is an excellent text for those who have a thorough background in Chemical Kinetics and Dynamics. However, for the introductory graduate level kinetics course or advanced undergraduate kinetics course, I would not recommend this text. Steinfeld does not illustrate any of

the concepts with actual data or explanatory problems. Furthermore, the problems at the end of the chapter have very little to do with the material they are supposed to cover. Finally, there are many mistakes in this edition. They are mostly typos, but they add a lot of confusion to the material I would recommend this book only to people who have a very complete background in kinetics and dynamics as a nice reference book.

The content is there but the incredible number of typos in this book often makes it hard to follow the math. The language used in the problem sets are not clear so at times it is hard to decipher what is being asked. There are also many typos in the questions, which makes solving the problems difficult and lowers the usefulness of the problems in helping to learn the material. However, with the help of some reference materials (especially in the Laplace transform section), this book can provide a good basic understanding of chemical kinetics.

The text seems fine but there are way too many typos in the mathematical formulations for such a math heavy subject. Seems very careless to me that these made it through to publication.

As another review said, this book has typos in it. They are not so huge as to impede the progress of one through this text-usually they are minor and easy to figure out if one fills in the one or two (very) trivial steps they usually skip. The problems at the end of the chapter are excellent in that they require the reader to take the knowledge they have been given and have to apply it to situations they have not been walked through step by step with the authors holding the reader by the hand. This is an advanced undergraduate, graduate student level text and should be treated as such. Though the topic itself is not that challenging they have written an excellent text that will challenge the reader to push the boundaries of their current knowledge. If you are having a hard time seeing the connection between the problems at the end of the chapter and what preceded said problems, you likely did not understand the material and thus are not ready to tackle the problems. Read with care and patience, the payoff will be great.

It is a very good text book on kinetics, specially on gas phase. It miss some important parts of solution kinetics, but this is not a critical fail.

This book was plagued with mistakes which made trusting it difficult and did not assist me when completing the assigned homework.

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