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Nota di contenuto	Introduction -- Reaction Kinetics Basics -- Mechanism Construction and the Source of Data -- Reaction Pathway Analysis -- Sensitivity and Uncertainty Analyses -- Time-Scale Analysis -- Reduction of Reaction Mechanisms -- Similarity of Sensitivity Functions -- Computer Codes for the Study of Complex Reaction Systems -- Summary and Concluding Remarks.
Sommario/riassunto	Chemical processes in many fields of science and technology, including combustion, atmospheric chemistry, environmental modelling, process

engineering, and systems biology, can be described by detailed reaction mechanisms consisting of numerous reaction steps. This book describes methods that are applicable in all these fields. Topics addressed include: how sensitivity and uncertainty analyses allow the calculation of the overall uncertainty of simulation results and the identification of the most important input parameters, the ways in which mechanisms can be reduced without losing important kinetic and dynamic detail, and the application of reduced models for more accurate engineering optimizations. This monograph is invaluable for researchers and engineers dealing with detailed reaction mechanisms, but is also useful for graduate students of related courses in chemistry, mechanical engineering, energy and environmental science and biology.