

**E. E. Nikitin and L. Zülicke: Selected Topics of the Theory of Chemical Elementary Processes (Lecture Notes in Chemistry, Vol. 8).** Berlin – Heidelberg – New York: Springer-Verlag 1978, IX + 175 pp., price: DM 20, —/US-\$10.00

This volume of Springer's lecture notes in chemistry provides an elegant survey of the present status of the dynamical theories of atomic and molecular scattering processes. The text is based on manuscripts of lectures which the authors held in 1976.

In the first chapter, the formal relations between scattering cross sections and rate constants are described, and the second chapter deals with the Born-Oppenheimer approximation of the separation of electronic and nuclear motion. In the third chapter, the foundations of classic trajectory calculations as well as of quantum mechanical scattering theories are presented, and in the fourth chapter semiclassical methods for adiabatic molecular scattering processes are treated. The theories of non-adiabatic transitions with atomic and molecular collisions are developed in the fifth chapter, discussing especially extended Landau-Zener models in this context.

Having been written very clearly and lucidly, the text introduces the reader into the field of the dynamics of scattering processes which is subject to world-wide research presently.

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