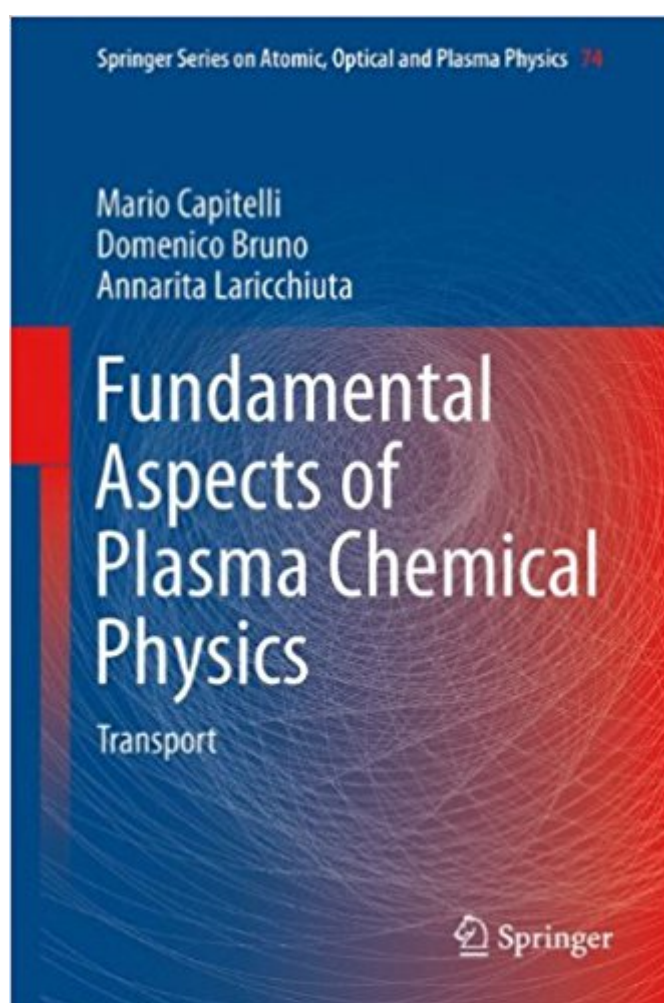


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Fundamental Aspects Of Plasma Chemical Physics: Transport (Springer Series On Atomic, Optical, And Plasma Physics)



Synopsis

Fundamental Aspects of Plasma Chemical Physics: Transport develops basic and advanced concepts of plasma transport to the modern treatment of the Chapman-Enskog method for the solution of the Boltzmann transport equation. The book invites the reader to consider actual problems of the transport of thermal plasmas with particular attention to the derivation of diffusion- and viscosity-type transport cross sections, stressing the role of resonant charge-exchange processes in affecting the diffusion-type collision calculation of viscosity-type collision integrals. A wide range of topics is then discussed including (1) the effect of non-equilibrium vibrational distributions on the transport of vibrational energy, (2) the role of electronically excited states in the transport properties of thermal plasmas, (3) the dependence of transport properties on the multitude of Saha equations for multi-temperature plasmas, and (4) the effect of the magnetic field on transport properties. Throughout the book, worked examples are provided to clarify concepts and mathematical approaches. This book is the second of a series of three published by the Bari group on fundamental aspects of plasma chemical physics. The first book, Fundamental Aspects of Plasma Chemical Physics: Thermodynamics, is dedicated to plasma thermodynamics; and the third, Fundamental Aspects of Plasma Chemical Physics: Kinetics, deals with plasma kinetics.

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