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Book review

***Modern Plasma Physics, Vol. I: Physical Kinetics of Turbulent Plasmas*, by Patrick H. Diamond, Sanae-I. Itoh and Kimitaka Itoh, Cambridge University Press, Cambridge (UK), 2010, IX, 417 p., ISBN 978-0-521-86920-1 (Hardback)**

If you want to learn not only the most fundamental things about the physics of turbulent plasmas but also the current state of the problem including the most recent results in theoretical and experimental investigations – and certainly many physicists and astrophysicists do – this series of three excellent monographs is just for you. The first volume "Physical Kinetics of Turbulent Plasmas" develops the kinetic theory of turbulence through a focus on quasi-particle models and dynamics. It discusses the concepts and theoretical methods for describing weak and strong fluid and phase space turbulence in plasma systems far from equilibrium. The core material includes fluctuation theory, self-similar cascades and transport, mean field theory, resonance broadening and nonlinear wave–particle interaction, wave–wave interaction and wave turbulence, strong turbulence theory and renormalization. The book gives readers a deep understanding of the fields under consideration and builds a foundation for future applications to multi-scale processes of self-organization in tokamaks and other confined plasmas. In spite of a short pedagogical introduction, the book is addressed mainly to well prepared readers with a serious background in plasma physics, to researchers and advanced graduate students in nonlinear plasma physics, controlled fusions and related fields such as cosmic plasma physics.

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