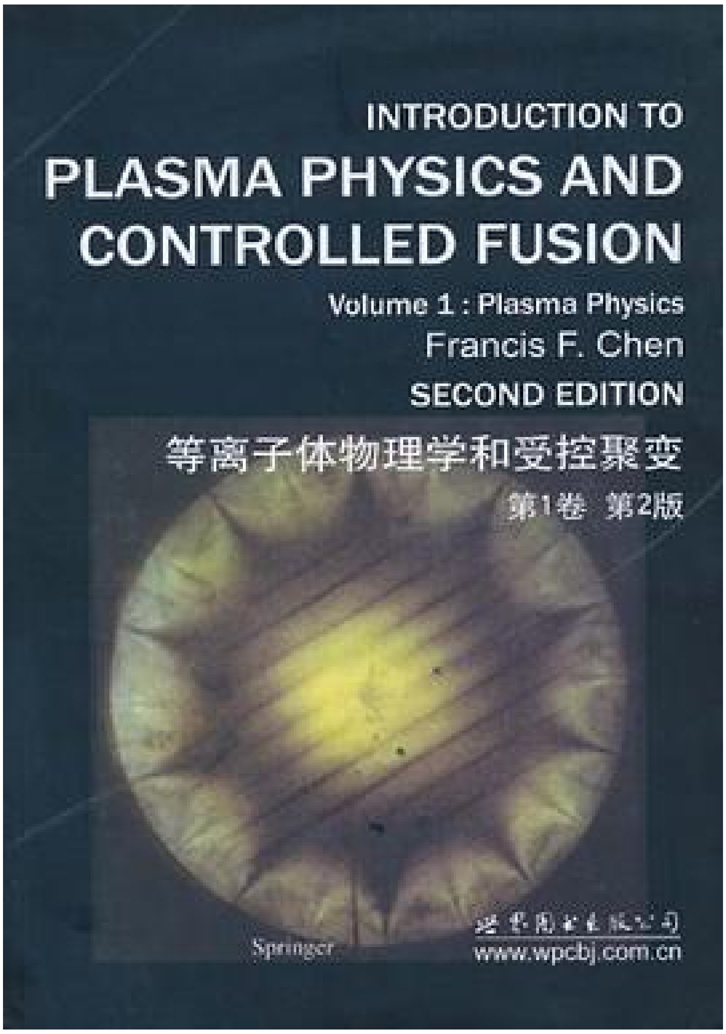
等离子体物理学和受控聚变



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《等离子体物理学和受控聚变:第1卷(第2版)》内容简介：In the nine years since this book was first written, rapid progress has been made scientifically in nuclear fusion, space physics, and nonlinear plasma theory. At the same time, the energy shortage on the one hand and the exploration of Jupiter and Saturn on the other have increased the national awareness of the important applications of plasma physics to energy production and to the understanding of our space environment.

In magnetic confinement fusion, this period has seen the attainment of a Lawson number nTE of 2×1013 cm-3 sec in the A!cator tokamaks at MIT; neutral-beam heating of the PLT tokamak at Princeton to KTi=6.5 keV; increase of average to 3%-5% in tokamaks at Oak Ridge and General Atomic; and the stabilization of mirror-confined plasmas at Livermore, together with injection of ion current to near field-reversal conditions in the 2XIIB device. Invention of the tandem mirror has given magnetic confinement a new and exciting dimension. New ideas have emerged, such as the compact torus, surface-field devices, and the EBT mirror-torus hybrid, and some old ideas, such as the stellarator and the reversed-field pinch, have been revived. Radiofrequency heat-ing has become a new star with its promise of dc current drive. Perhaps most importantly, great progress has been made in the understanding of the MHD behavior of toroidal plasmas: tearing modes, magnetic islands, and disruptions. Concurrently, the problems of reactor design, fusion technology, and fission-fusion hybrids have received serious attention for the first time.

作者介绍:

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