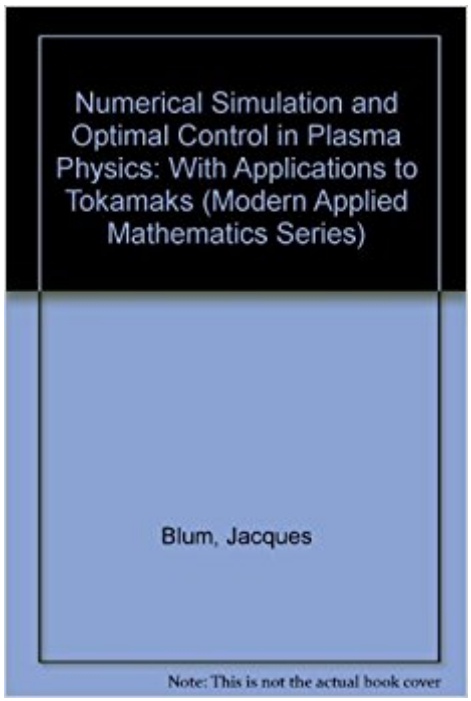
Numerical Simulation And Optimal Control In Plasma Physics: With Applications To Tokamaks (Modern Applied Mathematics Series)



Synopsis

This monograph on modelling, numerical simulation, and optimal control of equilibrium of the plasma in Tokamak fusion reactors covers new generation designs which have just entered service (JET, TFTR, and JT60), are under construction (TORE Supra), or are projected (INTOR and NET). The first five chapters deal with the stationary problem of axisymmetric equilibrium of the plasma--modelling and numerical simulation, mathematical existence of a solution for a simplified model, and identification and static control of the boundary of the plasma. Two final chapters treat the evolution of equilibrium on the time-scale of thermal diffusion in the plasma, and the stability and dynamic control of displacements of the plasma.

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