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Sommario/riassunto	Control analysis and design of large nuclear reactors requires a suitable mathematical model representing the steady state and dynamic behavior of the reactor with reasonable accuracy. This task is, however, quite challenging because of several complex dynamic phenomena existing in a reactor. Quite often, the models developed would be of prohibitively large order, non-linear and of complex structure not readily amenable for control studies. Moreover, the existence of simultaneously occurring dynamic variations at different speeds makes the mathematical model susceptible to numerical ill-conditioning, inhibiting direct application of standard control techniques. This monograph introduces a technique for mathematical modeling of large nuclear reactors in the framework of multi-point kinetics, to obtain a comparatively smaller order model in standard state space form thus overcoming these difficulties. It further brings in innovative methods for controller design for systems exhibiting multi-time-scale property,

with emphasis on three-time-scale systems.
