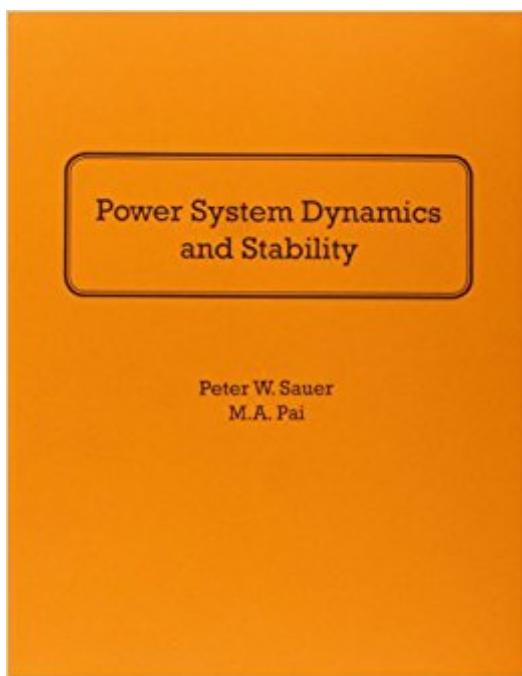


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Power System Dynamics And Stability



Synopsis

An introduction to electromagnetic transient analysis and a systemic derivation of synchronous machine dynamic models together with speed and voltage control subsystems. Also dynamic models for simulation and stability analysis. Particular care is given to the calculation of initial conditions and the alternative computational methods for simulation.

Book Information

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Customer Reviews

Beginning exactly where standard machinery and power system analysis courses end, this book explores the basic theory and systematic development of dynamic models and their use in multi-machine simulation. Using standard notation and a logical organization, it explains the fundamental laws for basic devices and systems in a mathematical modeling context, presents systematic derivations of standard synchronous machine models with their fundamental controls, and interconnects the individual models for system analysis and simulation. --This text refers to an out of print or unavailable edition of this title.

Must-read to understand power system dynamics!The study of power system dynamics is challenging due to the existence of dynamics in different time-scale; for example, governor action in the scale of seconds, rotor flux phenomena in the scale of tenth of a second, stator flux phenomena in the scale of milliseconds. Mathematically speaking these are known as stiff systems. To avoid excessive simulation time or numerical instability due to the stiff nature of the model, in the power engineering community, it is customary to represent power systems by a set of differential-algebraic

equations. The authors did an awesome job describing the theory to understand system dynamics and showing how to obtain a proper representation by using integral manifolds. I highly recommend this book to first year graduate degree students, engineers and scientists that have interest in the behavior of the power system.

Este libro hace una descripción de las máquinas eléctricas, de manera tal de que se puedan modelar para poder estudiar la estabilidad de la máquina y del sistema en el cual está funcionando. Es una herramienta para el ingeniero, porque cada vez necesita más estudiar la dinámica del sistema, para poder aprovechar al máximo cada elemento.

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