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Soggetti	Nuclear energy Quality control Reliability Industrial safety Automatic control Nuclear Energy Quality Control, Reliability, Safety and Risk Control and Systems Theory
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Nota di contenuto	Chapter 1: Introduction.- Chapter 2: Modelling and Control of Advanced Heavy Water Reactor.- Chapter 3: State Feedback Control for AHWR -- Chapter 4: Sliding Mode Control for Spatial Stabilization of AHWR -- Chapter 5: Spatial Control of AHWR using Fast Output Sampling Technique.- Chapter 6: Periodic Output Feedback for Spatial Control of AHWR: A Three-Time-Scale Approach.- Chapter 7: Discrete-time Sliding Mode Spatial Control of AHWR.- Chapter 8: Comparison of Spatial Controllers.- Chapter 9: Conclusions and Future Scopes. - Appendix A.- Appendix B.- Bibliography.
Sommario/riassunto	This book examines the different spatial control techniques for regulation of spatial power distribution in advanced heavy water reactors (AHWR). It begins with a review of the literature pertinent to the modeling and control of large reactors. It also offers a nodal-core model based on finite difference approximation since the AHWR core is considered to be divided into 17 relatively large nodes. Further, it

introduces a nonlinear model characterizing important thermal hydraulics parameters of AHWR and integrates it into the neutronics model to obtain a coupled neutronics-thermal hydraulics model of AHWR. The book also presents a vectorized nonlinear model of AHWR and implements it in MATLAB/Simulink environment. The model of the reactor is then linearized at the rated power and put into standard state variable form. It is characterized by 90 states, 5 inputs and 18 outputs. Lastly, it discusses control techniques for a nonlinear model of AHWR. This book will prove to be a valuable resource for professional engineers and implementation specialists, researchers and students.