1. Record Nr. UNINA9910337593003321

Autore	Zohuri Bahman
Titolo	Heat Pipe Applications in Fission Driven Nuclear Power Plants / / by Bahman Zohuri
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2019
ISBN	3-030-05882-4
Edizione	[1st ed. 2019.]
Descrizione fisica	1 online resource (XVIII, 362 p. 227 illus., 112 illus. in color.)
Disciplina	621.042
Soggetti	Energy systems Thermodynamics Heat engineering Heat - Transmission Mass transfer Nuclear energy Energy Systems Engineering Thermodynamics, Heat and Mass Transfer Nuclear Energy
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Chapter 1. Why Nuclear Power Plant Energy -- Chapter 2. Small Modular Reactors and Innovative Efficient Enhancement Design -- Chapter 3. Design and Analysis of Core Design for Small Modular Reactors -- Chapter 4. Thermodynamic Cycles -- Chapter 5. Modeling The Nuclear Air Brayton Combined Cycle -- Chapter 6. Basic Principles of Heat Pipes and History -- Chapter 7. Direct Reactor Auxiliary Cooling System -- Chapter 8. Application Of Heat Pipes To Fissionable Nuclear Reactor -- Chapter 9. Design Guide and Heat Pipe Selection -- Chapter 10. Heat Pipe Manufacturing.
Sommario/riassunto	This book presents a new and innovative approach for the use of heat pipes and their application in a number of industrial scenarios, including space and nuclear power plants. The book opens by describing the heat pipe and its concept, including sizing, composition and binding energies. It contains mathematical models of high and low

temperature pipes along with extensive design and manufacturing models, characteristics and testing programs. A detailed design and safety analysis concludes the book, emphasizing the importance of heat pipe implementation within the main cooling system and within the core of the reactor, making this book a useful resource for students, engineers, and researchers. Describes the benefits, uses, and challenges related to heat pipe application; Contains case studies and examples to enhance practical application of the presented technologies; Presents innovative and unique solutions for safety enhancements.