1. Record Nr. UNINA9910299594603321

Autore	Zohuri Bahman
Titolo	Combined Cycle Driven Efficiency for Next Generation Nuclear Power Plants : An Innovative Design Approach / / by Bahman Zohuri, Patrick McDaniel
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2018
ISBN	3-319-70551-2
Edizione	[2nd ed. 2018.]
Descrizione fisica	1 online resource (XX, 395 p. 183 illus., 102 illus. in color.)
Disciplina	333.7924
Soggetti	Nuclear energy Thermodynamics Nuclear Energy
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Sommario/riassunto	The second edition of this book includes the most up-to-date details on the advantages of Nuclear Air-Brayton Power Plant Cycles for advanced reactors. It demonstrates significant advantages for typical sodium cooled reactors and describes how these advantages will grow as higher temperature systems (molten salts) are developed. It also describes how a Nuclear Air-Brayton system can be integrated with significant renewable (solar and wind) energy systems to build a low carbon grid. Starting with basic principles of thermodynamics as applied to power plant systems, it moves on to describe several types of Nuclear Air-Brayton systems that can be employed to meet different requirements. It provides estimates of component sizes and performance criteria for Small Modular Reactors (SMR). This book has been revised to include updated tables and significant new results that have become available for intercooled systems in the time since the previous edition published. In this edition also, the steam tables have been updated and Chapters 9 and 10 have been rewritten to keep up with the most up-to- date technology and current research. Describes several types of Nuclear Air-Brayton systems that can be employed to

meet different requirements; Estimates component sizes and performance criteria for Small Modular Reactors (SMR) based on the Air-Brayton concept; Examines all power conversion aspects from the fluid exiting the reactor to the energy releases to the environment, with special focus on heat exchangers and turbo-machinery; Provides examples of small projects to facilitate nuanced understanding of the theories and implementation of combined-cycle nuclear plants.