1. Record Nr. UNINA9910141484303321

Autore	Singh V. P (Vijay P.)
Titolo	Entropy theory and its application in environmental and water engineering / / Vijay P. Singh
Pubbl/distr/stampa	Chichester, West Sussex, U.K., : John Wiley & Sons Inc., 2013
ISBN	1-118-42830-7 1-299-15908-7 1-118-42859-5 1-118-42860-9
Edizione	[1st ed.]
Descrizione fisica	1 online resource (666 p.)
Disciplina	627.01/53673
Soggetti	Hydraulic engineering - Mathematics Water - Thermal properties - Mathematical models Hydraulics - Mathematics Maximum entropy method Entropy
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and indexes.
Nota di contenuto	Cover; Title Page; Copright; Contents; Preface; Acknowledgments; Chapter 1 Introduction; 1.1 Systems and their characteristics; 1.1.1 Classes of systems; 1.1.2 System states; 1.1.3 Change of state; 1.1.4 Thermodynamic entropy; 1.1.5 Evolutive connotation of entropy; 1.1.6 Statistical mechanical entropy; 1.2 Informational entropies; 1.2.1 Types of entropies; 1.2.2 Shannon entropy; 1.2.3 Information gain function; 1.2.4 Boltzmann, Gibbs and Shannon entropies; 1.2.5 Negentropy; 1.2.6 Exponential entropy; 1.2.7 Tsallis entropy; 1.2.8 Renyi entropy; 1.3 Entropy, information, and uncertainty 1.3.1 Information1.3.2 Uncertainty and surprise; 1.4 Types of uncertainty; 1.5 Entropy and related concepts; 1.5.1 Information content of data; 1.5.2 Criteria for model selection; 1.5.3 Hypothesis testing; 1.5.4 Risk assessment; Questions; References; Additional References; Chapter 2 Entropy Theory; 2.1 Formulation of entropy; 2.2 Shannon entropy; 2.3 Connotations of information and entropy; 2.3.1 Amount of information; 2.3.2 Measure of information; 2.3.3 Source of

Sommario/riassunto

Entropy Theory and its Application in Environmental and Water Engineering responds to the need for a book that deals with basic concepts of entropy theory from a hydrologic and water engineering perspective and then for a book that deals with applications of these concepts to a range of water engineering problems. The range of applications of entropy is constantly expanding and new areas finding a use for the theory are continually emerging. The applications of concepts and techniques vary across different subject areas and this book aims to relate them directly to practical problems