1.	Record Nr.	UNINA9910456107903321
	Autore	Burgin Mark
	Titolo	Theory of information [[electronic resource]] : fundamentality, diversity and unification / / Mark Burgin
	Pubbl/distr/stampa	Hackensack, N.J., : World Scientific, 2010
	ISBN	1-282-76050-5
		9786612760501
		981-283-549-0
	Descrizione fisica	1 online resource (689 p.)
	Collana	World Scientific series in information studies, , 1793-7876 ; ; v. 1
	Disciplina	003/.54
	Soggetti	Information theory
		Electronic books.
	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 index.
	Nota di contenuto	Contents; Preface; Acknowledgments; 1. Introduction; 1.1 How Do We Know What Information Is?; 1.2 Information in Society; 1.3 Information in Nature; 1.4 Technological Aspects of Information; 1.5 Structure of the Book; 2. General Theory of Information; 2.1 Signs, Symbols and the World; 2.2 What Information Is: Information Ontology; 2.3 How to Measure Information: Information Axiology; 2.4 Types and Properties of Information: Information Typology; 2.5 Information, Data, and Knowledge; 2.6 Emotions and Information; 3. Statistical Information Theory; 3.1 Information and Communication
		3.2 Information and Entropy3.3 Quantum Information; 3.4 Information and Problem Solving; 3.5 Axiomatization of Information Measurement; 3.6 Information in Physics; 4. Semantic Information Theory; 4.1 Three Dimensions of Information; 4.2 Logical Approach of Bar-Hillel and Carnap, Hintikka, and others: Logic in Information; 4.3 Knowledge-base Approach of Mackay, Shreider, Brooks, Mizzaro, and others: Knowledge from Information; 5. Algorithmic Information Theory; 5.1 Information, Algorithms, and Complexity; 5.2 Algorithmic Information Theory based on Recursive Algorithms: Recursive Approach
		5.3 Algorithmic Information Theory based on Inductive Algorithms: Inductive Approach5.4 Conditional Information Size as a Relative Information Measure: Relativistic Approach; 5.5 Dual Complexity and

Information Measures: Axiomatic Approach in Algorithmic Information Theory; 6. Pragmatic Information Theory; 6.1 Economic Approach of Marschak: Cost of Information; 6.2 Mission-Oriented Approach: Value, Cost, and Quality of Information; 6.3 Transformational Approach of Mazur: Impetus of Information; 7. Dynamics of Information 7.1 Information Flow in the Approach of Dretske, Barwise and Seligman: Information Process7.2 Operator Approach of Chechkin: Information Action; 7.3 Information Algebra and Geometry; 7.3.1 Interpreted Information Algebra; 7.3.2 Abstract Information Algebra; 7.3.3 Information Geometry; 8. Conclusion; Appendix: Mathematical Foundations of Information Theory; Appendix A: Set Theoretical Foundations; Appendix B: Elements of the Theory of Algorithms; Appendix C: Elements of Logic; Appendix D: Elements of Algebra and Category Theory; Appendix E: Elements of Probability Theory Appendix F: Numbers and Numerical FunctionsAppendix G: Topological, Metric and Normed Spaces; Bibliography; Subject Index

Sommario/riassunto	This unique volume presents a new approach - the <i>general theory of information</i> - to scientific understanding of information phenomena. Based on a thorough analysis of information processes in nature, technology, and society, as well as on the main directions in information theory, this theory synthesizes existing directions into a unified system. The book explains how this theory opens new kinds of possibilities for information technology, information sciences, computer science, knowledge engineering, psychology, linguistics, social sciences, and education. The book also gives a broad