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| Descrizione fisica | 1 online resource (XIV, 380 p. 83 illus., 41 illus. in color.) |
| Collana | Understanding Complex Systems, , 1860-0832 |
| Disciplina | 530.15 |
| Soggetti | Sociophysics Econophysics Neural networks (Computer science) Cognitive psychology Philosophy of mind Physics Data-driven Science, Modeling and Theory Building Mathematical Models of Cognitive Processes and Neural Networks Cognitive Psychology Philosophy of Mind Mathematical Methods in Physics |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Nota di bibliografia | Includes bibliographical references and index. |
| Nota di contenuto | Modeling of Human Behavior as Individual Branch of Physics and Mathematics -- Why Laws of Classical Physics Have Their Form -- Fodor-Kim Dilemma -- Strong Emergence via Constitutive Fields -- Non-Cartesian Dualism and Meso-Relational Media -- Modeling of Human Behavior Within the Paradigm of Modern Physics -- Emergent Phenomena Caused by Bounded Capacity of Human Cognition -- Epilog: Physics and Human Mind -- References -- Index. |
| Sommario/riassunto | This book tackles the challenging question which mathematical formalisms and possibly new physical notions should be developed for quantitatively describing human cognition and behavior, in addition to the ones already developed in the physical and cognitive sciences. Indeed, physics is widely used in modeling social systems, where, in |

particular, new branches of science such as sociophysics and econophysics have arisen. However, many if not most characteristic features of humans like willingness, emotions, memory, future prediction, and moral norms, to name but a few, are not yet properly reflected in the paradigms of physical thought and theory. The choice of a relevant formalism for modeling mental phenomena requires the comprehension of the general philosophical questions related to the mind-body problem. Plausible answers to these questions are investigated and reviewed, notions and concepts to be used or to be taken into account are developed and some challenging questions are posed as open problems. This text addresses theoretical physicists and neuroscientists modeling any systems and processes where human factors play a crucial role, philosophers interested in applying philosophical concepts to the construction of mathematical models, and the mathematically oriented psychologists and sociologists, whose research is fundamentally related to modeling mental processes.
