

Dittrich

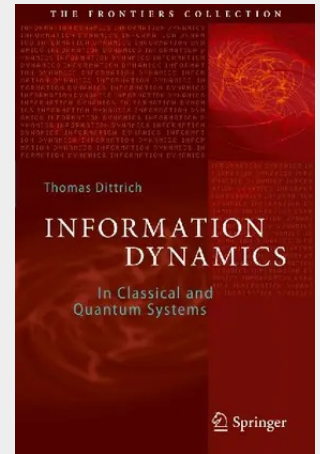
Information Dynamics

In Classical and Quantum Systems

This wide-ranging book introduces information as a key concept not only in physics, from quantum mechanics to thermodynamics, but also in the neighboring sciences and in the humanities. The central part analyzes dynamical processes as manifestations of information flows between microscopic and macroscopic scales and between systems and their environment. Quantum mechanics is interpreted as a reconstruction of mechanics based on fundamental limitations of information processing on the smallest scales. These become particularly manifest in quantum chaos and in quantum computing. Covering subjects such as causality, prediction, undecidability, chaos, and quantum randomness, the book also provides an information-theoretical view of predictability.

More than 180 illustrations visualize the concepts and arguments. The book takes inspiration from the author's graduate-level topical lecture but is also well suited for undergraduate studies and is a valuable resource for researchers and professionals.

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80,24 €

74,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9783030967475

Medium: Buch

ISBN: 978-3-030-96747-5

Verlag: Springer

Erscheinungstermin: 24.11.2023

Sprache(n): Englisch

Auflage: 1. Auflage 2022

Serie: The Frontiers Collection

Produktform: Kartoniert

Gewicht: 861 g

Seiten: 557

Format (B x H): 155 x 235 mm

