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Holger F. Hofmann, Dynamics and Statistics in the Operator Algebra of Quantum Mechanics -- Keiji Matsumoto, A New Quantum Version of f -Divergence -- Part III Quantum Measurement: Jeremy Butterfield, Peaceful Coexistence: Examining Kent's Relativistic Solution to the Quantum Measurement Problem -- Yuji Hasegawa, Relations Inherent in Successive 1=2??Spin Measurements -- Jasper van Heugten and Sander Wolters, Obituary for a Flea -- Kazuya Okamura, Measuring Processes and the Heisenberg Picture.

Sommario/riassunto

This book features papers based on presentations at the "Nagoya Winter Workshop 2015: Reality and Measurement in Algebraic Quantum Theory (NWW 2015)", held in Nagoya, Japan, in March 2015. The book includes new research results in quantum information theory, quantum measurement theory, information thermodynamics, operator algebraic and category theoretical foundations of quantum theory, as well as the interplay between experimental and theoretical investigations on the uncertainty principle. The foundations of quantum theory have been a source of mystery, puzzles and confusion, and have encouraged innovations in mathematical languages to describe, analyze, and delineate this wonderland. Both ontological and epistemological questions about quantum reality and measurement have been placed at the center of the mysteries originally explored by Bohr, Heisenberg, Einstein, and Schrödinger. This volume describes how those traditional problems are today explored from the most advanced perspectives. This book appeals to a broad audience of mathematicians, theoretical and experimental physicists, and philosophers of science.