

G. Ludwig, University of Marburg, Germany

An Axiomatic Basis for Quantum Mechanics

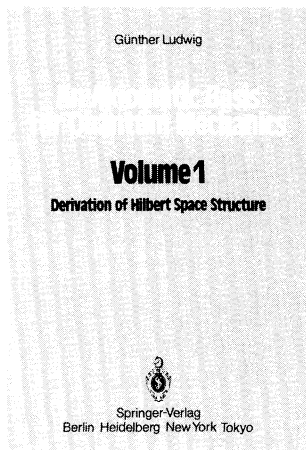
Volume 1

Derivation of Hilbert Space Structure

1985. 6 figures. X, 243 pages.
Hard cover DM 118,-. ISBN 3-540-13773-4

This is a work on the fundamental concepts of quantum mechanics. Professor Ludwig's aim is to deduce the description of microscopic objects solely from a macroscopic description of the devices used for their detection. The description of a two-part macrosystem where the microsystem is discovered as the system transmitting the interaction is the main topic of this volume. Empirically founded axioms then give rise to the Hilbert space structure of quantum mechanics.

This monograph will not only be an important source of inspiration for future research but should also appeal to all interested in the fundamental structure of nature and of what we may know about it.



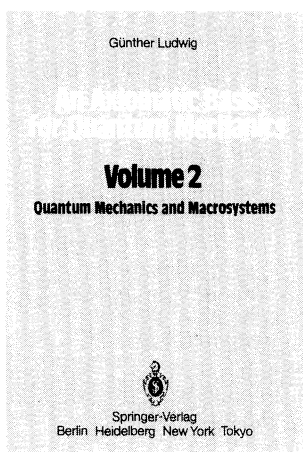
Volume 2

Quantum Mechanics and Macrosystems

1987. 4 figures. IX, 242 pages.
Hard cover DM 155,-. ISBN 3-540-17540-7

In the first volume Professor Ludwig based quantum mechanics on the objective description of macroscopic devices. In the second volume the method is extended to many elementary systems, leading to the theory of "extrapolated quantum mechanics". The author establishes the statistical mechanics of macrosystems, and on this basis he solves the problem of the measuring process in a convincing new way as an interaction between microsystems and macroscopic devices.

Both volumes together present a consistent description of quantum mechanics, the measuring process and its interpretation.



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