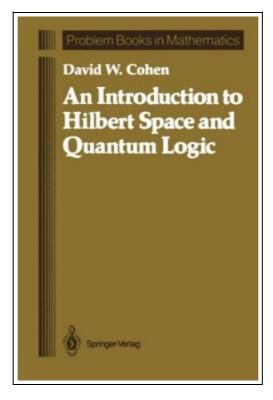
An Introduction to Hilbert Space and Quantum Logic



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Reviews

This publication will be worth purchasing. It really is writter in simple terms instead of difficult to understand. Its been designed in an exceptionally simple way and is particularly only right after i finished reading this ebook in which basically modified me, alter the way i believe.

(Prof. Loyce Runolfsson Jr.)

AN INTRODUCTION TO HILBERT SPACE AND QUANTUM LOGIC



Condition: New. Publisher/Verlag: Springer, Berlin | Historically, nonclassical physics developed in three stages. First came a collection of ad hoc assumptions and then a cookbook of equations known as "quantum mechanics". The equations and their philosophical underpinnings were then collected into a model based on the mathematics of Hilbert space. From the Hilbert space model came the abstaction of "quantum logics". This book explores all three stages, but not in historical order. Instead, in an effort to illustrate how physics and abstract mathematics influence each other we hop back and forth between a purely mathematical development of Hilbert space, and a physically motivated definition of a logic, partially linking the two throughout, and then bringing them together at the deepest level in the last two chapters. This book should be accessible to undergraduate and beginning graduate students in both mathematics and physics. The only strict prerequisites are calculus and linear algebra, but the level of mathematical sophistication assumes at least one or two intermediate courses, for example in mathematical analysis or advanced calculus. No background in physics is assumed. | 1. Experiments, Measure, and Integration.- A. Measures.- Experiments and weight functions, expected value of a weight function, measures, Lebesgue measure, signed measures, complex measures, measurable functions, almost everywhere equality.- B. Integration.- Simple functions, simple integrals, general integrals, Lebesgue integrals, properties of integrals, expected values as integrals, complex integrals. - 2. Hilbert Space Basics. - Inner product space, norm, orthogonality, Pythagorean theorem, Bessel and Cauchy-Schwarz and triangle inequalities, Cauchy sequences, convergence in norm, completeness, Hilbert space, summability, bases, dimension.- 3. The Logic of Nonclassical Physics.- A. Manuals of Experiments and Weights.- Manuals, outcomes, events, orthogonality, refinements, compatibility, weights on manuals, electron spin, dispersion-free weights, uncertainty.- B. Logics and State Functions.- Implication in manuals, logical equivalence, operational logic, implication and orthocomplementation in the logic,...



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