Hilbert Space: the Mathematics of Infinite Dimensions (Paperback)

By Edited by Paul F Kisak

Createspace Independent Publishing Platform, United States, 2016. Paperback. Condition: New. Language: English . Brand New Book ***** Print on Demand *****.The mathematical concept of a Hilbert space, named after David Hilbert, generalizes the notion of Euclidean space. It extends the methods of vector algebra and calculus from the two-dimensional Euclidean plane and three-dimensional space to spaces with any finite or infinite number of dimensions. A Hilbert space is an abstract vector space possessing the structure of an inner product that allows length and angle to be measured. Furthermore, Hilbert spaces are complete: there are enough limits in the space to allow the techniques of calculus to be used. Hilbert spaces arise naturally and frequently in mathematics and physics, typically as infinite-dimensional function spaces. The earliest Hilbert spaces were studied from this point of view in the first decade of the 20th century by David Hilbert, Erhard Schmidt, and Frigyes Riesz. They are indispensable tools in the theories of partial differential equations, quantum mechanics, Fourier analysis (which includes applications to signal processing and heat transfer)-and ergodic theory, which forms the mathematical underpinning of thermodynamics. John von Neumann coined the term Hilbert space for the abstract concept that underlies many of these...

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Reviews