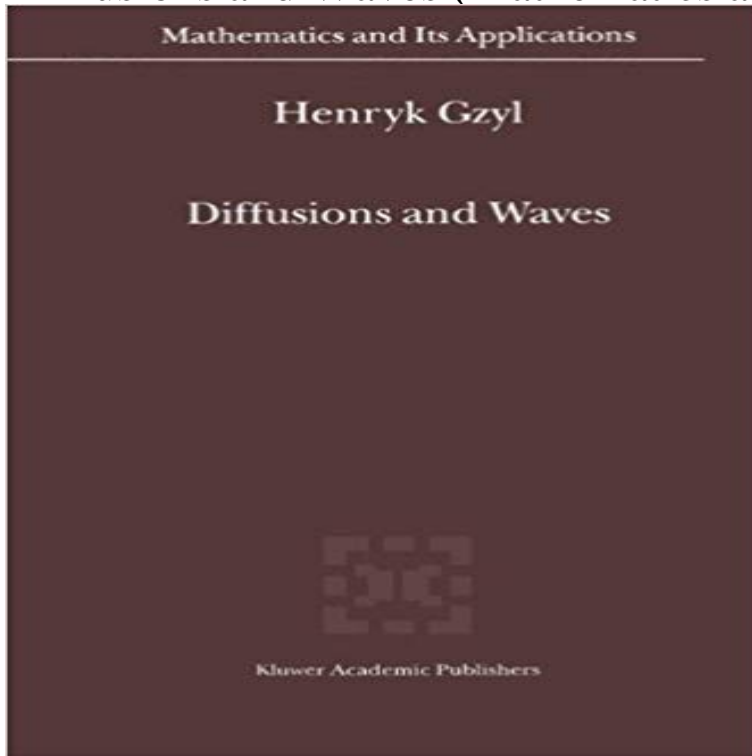


Diffusions and Waves (Mathematics and Its Applications)



In this book several connections between probability theory and wave propagation are explored. The connection comes via the probabilistic (or path integral) representation of both the (fixed frequency) Green functions and of the propagators -operators mapping initial into present time data. The formalism includes both waves in continuous space and in discrete structures. One of the main applications of the formalism developed is to inverse problems in wave propagation. Using the probabilistic formalism, the parameters of the medium and the surfaces determining the region of propagation appear explicitly in the path integral representation of the Green functions and propagators. This fact is what provides a useful starting point for inverse problem formulation. Audience: The book is suitable for advanced graduate students in the mathematical, physical or in the engineering sciences. The presentation is quite self-contained, and not extremely rigorous.

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