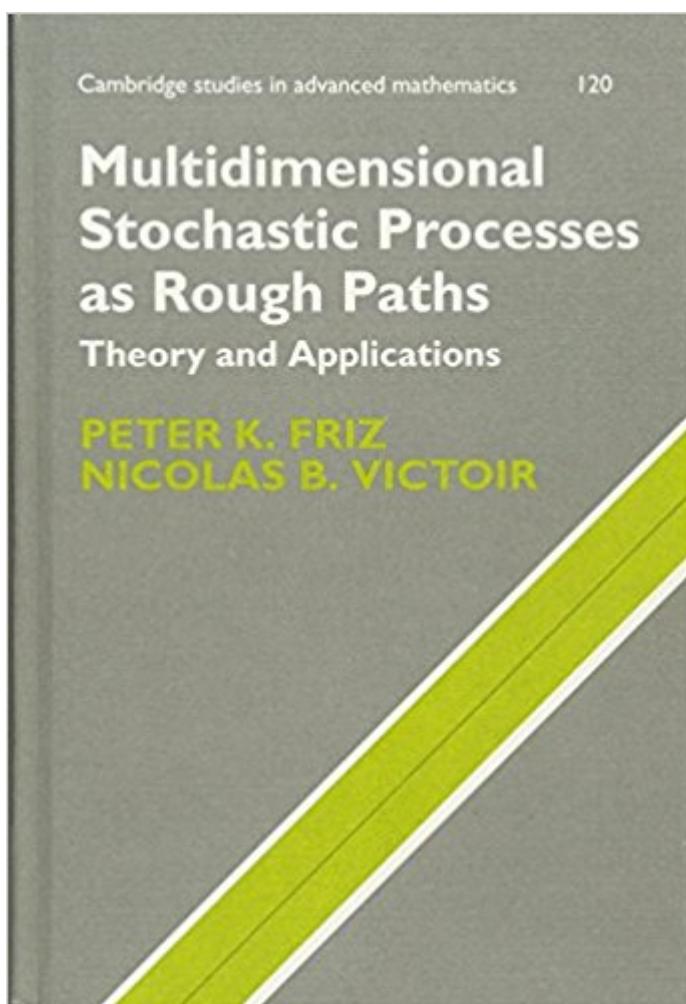


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# Multidimensional Stochastic Processes As Rough Paths: Theory And Applications (Cambridge Studies In Advanced Mathematics)



## Synopsis

Rough path analysis provides a fresh perspective on Ito's important theory of stochastic differential equations. Key theorems of modern stochastic analysis (existence and limit theorems for stochastic flows, Freidlin-Wentzell theory, the Stroock-Varadhan support description) can be obtained with dramatic simplifications. Classical approximation results and their limitations (Wong-Zakai, McShane's counterexample) receive 'obvious' rough path explanations. Evidence is building that rough paths will play an important role in the future analysis of stochastic partial differential equations and the authors include some first results in this direction. They also emphasize interactions with other parts of mathematics, including Caratheodory geometry, Dirichlet forms and Malliavin calculus. Based on successful courses at the graduate level, this up-to-date introduction presents the theory of rough paths and its applications to stochastic analysis. Examples, explanations and exercises make the book accessible to graduate students and researchers from a variety of fields.

## Book Information

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Rough paths may play an important role in the future analysis of stochastic partial differential equations. This up-to-date introduction presents the theory of rough paths and its applications to stochastic analysis. Examples, explanations and exercises make the book accessible to graduate students and researchers from a variety of fields.

Peter K. Friz is a Reader in the Department of Pure Mathematics and Mathematical Statistics at the University of Cambridge. He is also a Research Group Leader at the Johann Radon Institute at the Austrian Academy of Sciences, Linz. Nicolas B. Victoir works in quantitative research at JPMorgan in Hong Kong.

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