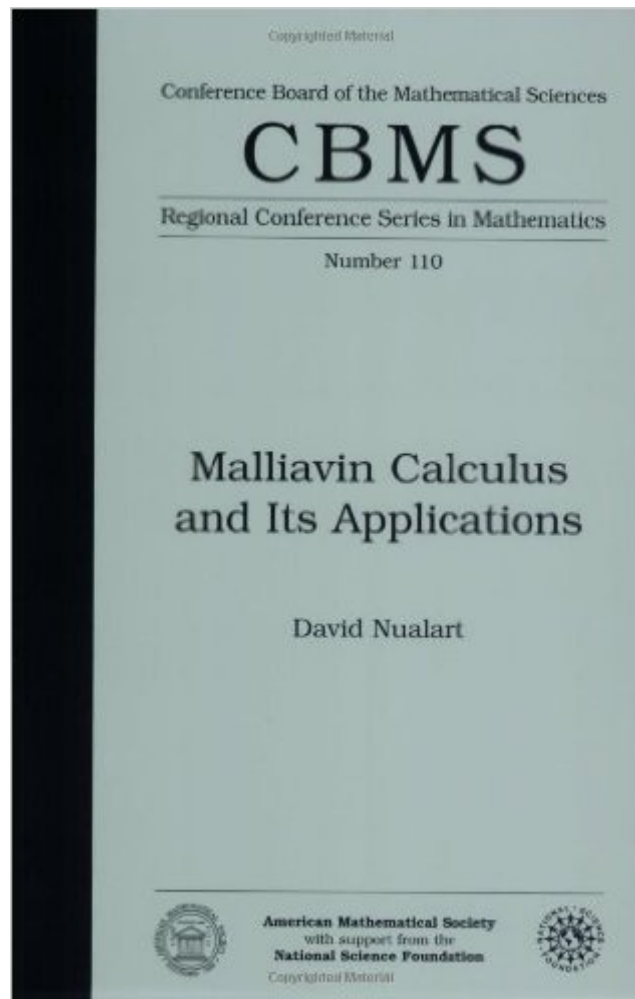


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Malliavin Calculus And Its Applications (Cbms Regional Conference Series In Mathematics)



Synopsis

The Malliavin calculus was developed to provide a probabilistic proof of Hormander's hypoellipticity theorem. The theory has expanded to encompass other significant applications. The main application of the Malliavin calculus is to establish the regularity of the probability distribution of functionals of an underlying Gaussian process. In this way, one can prove the existence and smoothness of the density for solutions of various stochastic differential equations. More recently, applications of the Malliavin calculus in areas such as stochastic calculus for fractional Brownian motion, central limit theorems for multiple stochastic integrals, and mathematical finance have emerged. The first part of the book covers the basic results of the Malliavin calculus. The middle part establishes the existence and smoothness results that then lead to the proof of Hormander's hypoellipticity theorem. The last part discusses the recent developments for Brownian motion, central limit theorems, and mathematical finance.

Book Information

Series: Cbms Regional Conference Series in Mathematics

Paperback: 85 pages

Publisher: American Mathematical Society (April 16, 2009)

Language: English

ISBN-10: 0821847791

ISBN-13: 978-0821847794

Product Dimensions: 0.2 x 7 x 10 inches

Shipping Weight: 8 ounces

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