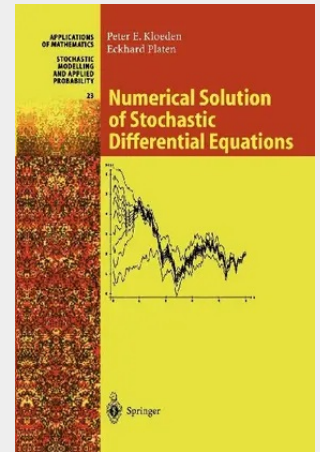


Numerical Solution of Stochastic Differential Equations

The aim of this book is to provide an accessible introduction to stochastic differential equations and their applications together with a systematic presentation of methods available for their numerical solution. During the past decade there has been an accelerating interest in the development of numerical methods for stochastic differential equations (SDEs). This activity has been as strong in the engineering and physical sciences as it has in mathematics, resulting inevitably in some duplication of effort due to an unfamiliarity with the developments in other disciplines. Much of the reported work has been motivated by the need to solve particular types of problems, for which, even more so than in the deterministic context, specific methods are required. The treatment has often been heuristic and ad hoc in character. Nevertheless, there are underlying principles present in many of the papers, an understanding of which will enable one to develop or apply appropriate numerical schemes for particular problems or classes of problems.

The numerical analysis of stochastic differential equations (SDEs) differs significantly from that of ordinary differential equations, due to the peculiarities of stochastic calculus. This book provides an easily accessible introduction to SDEs, their applications and the numerical methods to solve such equations. To help the reader develop an intuitive understanding and hands-on numerical skills, numerous exercises and PC-Exercises are included. The book is directed at a multi-disciplinary readership, consisting primarily of engineers, financial analysts, physicists and mathematicians developing numerical schemes for applications of SDEs, and also of researchers in other fields like biology, chemistry or economics who, with less mathematical background, wish to apply



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