<<量子金融>>

图书基本信息

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前言

Financial markets have undergone tremendous growth and dramatic changes in the past two decades, with the volume of daily trading in currency markets hitting over a trillion US dollars and hundreds of billions of dollars in bond and stock markets.Deregulation and globalization have led to large-scale capital flows; this has raised new problems for finance as well as has further spurred competition among banks and financial institutions.The resulting booms, bubbles and busts of the global financial markets now directly affect the lives of hundreds of millions of people, as was witnessed during the 1998 East Asian financial crisis.The principles of banking and finance are fairly well established [16, 76, 87] and the challenge is to apply these principles in an increasingly complicated environment. The immense growth of financial markets, the existence of vast quantities of financial data and the growing complexity of the market, both in volume and sophistication, has made the use of powerful mathematical and computational tools in finance a necessity. In order to meet the needs of customers, complex financial instruments have been created; these instruments demand advanced valuation and risk assessment models and systems that quantify the returns and risks for investors and financial institutions [63, 100].The widespread use in finance of stochastic calculus and of partial differential equations reflects the traditional presence of probabilists and applied mathematicians in this field. The last few years has seen an increasing interest of theoretical physicists in the problems of applied and theoretical finance. In addition to the ast corpus of literature on the application of stochastic calculus to finance,concepts from theoretical physics have been finding increasing application in both theoretical and applied finance. The influx of ideas from theoretical physics, as expressed for example in [18] and [69], has added a whole collection of new mathematical and computational techniques to finance, from the methods of classical and quantum physics to the use of path integration, statistical mechanics and so on. This book is part of the on-going process of applying ideas from physics to finance.

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内容概要

近年来，金融数学的发展离不开随机微积分，而《量子金融(英文版)》提供了一种完全独立于该方法的新方法，将量子力学和量子场论中的数学公式和概念运用到期货理论和利率模型中，重点讲述路径积分。
相应的得到了不少新的预期结果。
《量子金融(英文版)》主要介绍了金融基本概念：金融基础；衍生证券；有限自由度系统：哈密顿体系和股票期货；路径积分和股票期货；随机利率模型的哈密顿体系和路径积分；利率模型的量子场论：利率远期合约的量子场论；经验利率远期合约和场论模型；国债衍生品场论；利率远期合约和场论哈密顿体系结论。

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章节摘录

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