

## **Melvin Lax, Wei Cai, Min Xu: Random Processes in Physics and Finance**

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This is an excellent book on random processes largely written by the late Melvin Lax—a leading expert in the field of random processes and laser physics—which has been edited and expanded by the co-authors Wei Cai and Min Xu.

The emphasis of the book is on the physical origins of noise and its applications rather than on an intricate and formal mathematical development of the subject. This results in a rich selection of applications, mostly to physics although the last two chapters of the book are devoted to finance. The material is quite unique, stemming from Lax's theoretical framework of random processes.

The book contains 17 chapters within a bit over 300 pages. The first three chapters constitute a remarkable introduction to probability theory and random processes. In the following chapters, and with the same competence, the authors go deeper into the subject with a good choice of topics, of which let us name a few: thermal and shot noise, the fluctuation-dissipation theorem, Fokker-Planck and Langevin processes, transport equation, and so forth. The last two chapters “Stochastic methods in investment decision” and “Spectral analysis of economic time series” constitute a short but fine introduction to the world of finance from a physicist's point of view.

The book is based on the class notes Prof. Lax taught for more than 15 years at the City University of New York. Therefore, the pedagogical features of the book are a principal feature. But aside from its teaching qualities the book is a pleasure to read even for the expert. I warmly recommend this book for both, the beginner and the professional.

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