

Sketch of Applied Stochastic Analysis

Tiejun Li

School of Mathematical Sciences, Peking University,

Beijing 100871, P.R. China

Email: tieli@pku.edu.cn

Lect1	Introduction
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Lect3	Generation of RVs
Lect4	Variance Reduction
Lect5	Laplace Method and Cramér's Thm
Lect6	Markov Chains and Markov Processes
Lect7	Metropolis Algorithm and KMC
Lect8	Simulated Annealing and QMC
Lect9	Random Walk
Lect10	Wiener Process and Its Construction
Lect11	SDE and Itô's Formula, Simple SDE
Lect12	FPE and Invariant Distribution, Diffusion Process
Lect13	Numerical SDE
Lect14	Path Integral and Girsanov Transformation
Lect15	Rare Events and String Method: I
Lect16	Rare Events and String Method: II
Lect17	Applications in Fluids(Random Vortex method)
Lect18	Applications in Complex Fluids: I
Lect19	Applications in Complex Fluids: II
Lect20	Applications in Economics (Option Pricing)
Lect21	Applications in DNA modeling (Persistence Length, WLC)
Lect22	Applications in Biology (Molecular Motors)