

Contents

Part I Particle Methods in Finance

An Introduction to Particle Methods with Financial Applications	3
René Carmona, Pierre Del Moral, Peng Hu, and Nadia Oudjane	
American Option Valuation with Particle Filters	51
Bhojnarine R. Rambharat	
Monte Carlo Methods for Adaptive Disorder Problems	83
Michael Ludkovski	

Part II Numerical Methods for Backward Conditional Expectations

Monte Carlo Approximations of American Options that Preserve Monotonicity and Convexity	115
Pierre Del Moral, Bruno Rémillard, and Sylvain Rubenthaler	
Optimal Hedging of American Options in Discrete Time	145
Bruno Rémillard, Alexandre Hocquard, Hugues Langlois, and Nicolas Papageorgiou	
Optimal Delaunay and Voronoi Quantization Schemes for Pricing American Style Options	171
Gilles Pagès and Benedikt Wilbertz	
Monte-Carlo Valuation of American Options: Facts and New Algorithms to Improve Existing Methods	215
Bruno Bouchard and Xavier Warin	
Least-Squares Monte Carlo for Backward SDEs	257
Christian Bender and Jessica Steiner	

Pricing American Options in an Infinite Activity Lévy Market: Monte Carlo and Deterministic Approaches Using a Diffusion Approximation	291
Lisa J. Powers, Johanna Nešlehová, and David A. Stephens	
Fourier Cosine Expansions and Put–Call Relations for Bermudan Options	323
Bowen Zhang and Cornelis W. Oosterlee	
Part III Numerical Methods for Energy Derivatives	
A Practical View on Valuation of Multi-Exercise American Style Options in Gas and Electricity Markets	353
Klaus Wiebauer	
Swing Options Valuation: A BSDE with Constrained Jumps Approach	379
Marie Bernhart, Huyên Pham, Peter Tankov, and Xavier Warin	
Swing Option Pricing by Optimal Exercise Boundary Estimation	401
François Turbault and Yassine Youlal	
Gas Storage Hedging	421
Xavier Warin	
Sensitivity Analysis of Energy Contracts by Stochastic Programming Techniques	447
J. Frédéric Bonnans, Zhihao Cen, and Thibault Christel	



<http://www.springer.com/978-3-642-25745-2>

Numerical Methods in Finance

Bordeaux, June 2010

Carmona, R.; Del Moral, P.; Hu, P.; Oudjane, N. (Eds.)

2012, XVIII, 474 p., Hardcover

ISBN: 978-3-642-25745-2