Premia 18

The underlined algorithms have been already implemented.

1 Standard European Options in the Black-Scholes Model

1.1 Call, Put, CallSpread, Digit

1.1.1 Analytic

- Black-Scholes Type Formula The general version of the Black-Scholes formula used to price European options on stocks paying a continuos dividend yields [202]
- Stochastic expansion for the pricing of call options with discrete dividends. [226]

1.1.2 Tree

- Cox Ross Rubinstein Binomial Binomial algorithm with the Cox-Ross-Rubinstein stock price parameters and probabilities [201]
- Extended Cox Ross Rubinstein Binomial Two steps backward CRR scheme, for a better accuracy of the Greeks [20]
- Hull White Binomial Binomial algorithm with the Hull-White stock price parameters and probabilities modified to account for dividends [30]
- Euler Binomial Stock price parameters and probabilities obtained from the discretization of the Wiener process
- Kamrad Ritchken Trinomial Trinomial tree with a stretch parameter λ [235]
- Third Moment Trinomial tree with matching first three moments
- LnThird Moment Trinomial tree with matching first four moments giving a $o(h^2)$ order of accuracy
- Figlewski Gao AMM Trinomial tree with Adaptive Mesh Model[263]
- Moment and Matching Strike Algorithm Binomial tree with Moment and Matching Strike Algorithm[43]

- Efficient pricing of derivatives on assets with discrete dividends[194]
- Pricing American barrier options with discrete dividends by binomial trees[190]
- Smooth convergence in the binomial model[175]

1.1.3 Finite-Difference

- Gauss Method For a given time step the elliptic problem is solved by the direct method of Gauss for tridiagonal matrix [44]
- Explicit Method Direct explicit scheme [44]
- Iterative Sor Method For a given time step the elliptic problem is solved by the iterative method Sor(Successive Overrelaxation) [44]
- Multigrid Method For a given time step the elliptic problem is solved by a FMG Multigrid algorithm [296]
- Adaptative Finite Element Method Adaptative time step and space varies to improve precision.[91] [32]
- Localization of the Black-Scholes equation using transparent boundary conditions

1.1.4 Montecarlo

- Monte Carlo Standard
- Quasi Montecarlo Low discrepancy sequences(Faure, SquareRoot, VanDerCorput, Sobol, Niedereitter, Owen's Randomization Technique) [139], [119], [124], [122], [8]
- Variance Reduction Various reduction variance methods(Antithetic Methdod, Stratified Sampling, Control Variate,Moment Matching, Importance Function, Newton,Malliavin Calculus for Digital Options) [208],[299],[132] [92]
- Scaling and multiscaling in financial series: a simple model [18]

2 Standard American Options in the Black-Scholes Model

2.1 Call, Put, CallSpread, Digit

2.1.1 Tree

- Cox Ross Rubinstein Binomial Binomial algorithm with the Cox-Ross-Rubinstein stock price parameters and probabilities [201]

- Extended Cox Ross Rubinstein Binomial Two steps backward CRR scheme, for a better accuracy of the Greeks [20]
- Hull White Binomial Binomial algorithm with the Hull-White stock price parameters and probabilities modified to account for dividends [30]
- Euler Binomial Stock price parameters and probabilities obtained from the discretization of the Wiener motion process
- Kamrad Ritchken Trinomial Trinomial tree with a stretch parameter λ [235]
- Third Moment Trinomial tree with matching first three moments
- Breen Accelerated Binomial The Breen accelerated method approximates the Geske-Johnson option pricing formula [242]
- Broadie-Detemple BBSR Binomial Black-Scholes modification of binomial algorithm with Richardson extrapolation [135]
- LnThird Moment Trinomial tree with matching first four moments giving a $o(h^2)$ order of accuracy
- Figlewski Gao AMM Trinomial tree with Adaptive Mesh Model[263]
- Moment and Matching Strike Algorithm Binomial tree with Moment and Matching Strike Algorithm[43]
- Smooth convergence in the binomial model[175]

2.1.2 Finite-Difference

- Brennan-Schwartz Algorithm The Brennan-Schwartz algorithm solves the linear complementarity problem [90],[45]
- Splitting Gauss Method The obstacle problem is splitted in two steps. Theta-method finite difference algorithm [198]
- Splitting Explicit Method The obstacle problem is splitted in two steps. Explicit finite-difference algorithm [198]
- Iterative Psor Method Projected SOR algorithm is used to solve large-scale linear complementarity problem [65]
- Cryer's Algorithm Pivoting method to solve directly linear complementarity problem [66]
- Finite Element Method Finite Element Method
- Achdou Pironneau Method Finite difference Crank-Nicholson scheme coupled, within each timestep, with an iterative algorithm to locate the free boundary. This method is inspired from [302]

2.1.3 Montecarlo

- Barraquand-Martineau Algorithm Stratification method. [74]
- Broadie-Glassermann Algorithm Approximation of dynamical programming using a stochastic mesh method. [228]
- Tsitsiklis-VanRoy Algorithm Approximation of dynamical programming using regression method.[255],[254]
- Longstaff-Schwartz Algorithm Estimation of optimal stopping time using regression method.[89]
- Pages-Bally Algorithm Approximation of dynamical programming using quantization method. [284]
- Broadie-Glassermann Algorithm Simulation algorithm for estimating the prices of American option with exercise opprtunities in a finite set of times. [227]
- Rogers Algorithm Method based on martingale Lagrangian. [253]
- Lions Regnier Algorithm Method based on Malliavin Calculus. [178]
- Barty Roy Strugarek Algorithm Stochastic algorithm.[158]
- Pricing and Hedging American-Style Options: A Simple Simulation-Based Approach[295]

2.1.4 Approximation

- MacMillan Approximation Quadratic method based on exact solutions to approximations of the partial differential equation [179]
- Whaley Approximation Quadratic method based on exact solutions to approximations of the partial differential equation [248]
- Bjerksund-Stensland Approximation The approximation is based on an exercise strategy corresponding to a flat exercise boundary [114]
- Ho-Stapleton-Subrahmanyam Approximation 2-points approximation formula with exponential extrapolation [280]
- Bunch-Johnson Approximation 2-points Geske-Johnson approximation formula [121]
- Carr Approximation Randomization and the American Put [51]
- Ju Approximation Pricing an American Option by approximating Its Early Exercise Boundary as a Multipiece Exponential Function [209]
- Broadie-Detemple LBA and LUBA Methods Approximation methods based on lower and upper bounds [135]

3 Barrier European Options in the Black-Scholes Model

3.1 Call, Put In-Out/Down-Up, Parisian

3.1.1 Analytic

- Reiner-Rubinstein Formula Black-Scholes type formula [200]
- Labart-Lelong Method Laplace transform method for Parisian option[60]
- Static Hedging of Standard Options.[180]

3.1.2 Trees

- Derman Kani Ergener Bardhan Algorithm Interpolation scheme for improving the pricing error of a binomial method [123]
- Ritchken Trinomial Algorithm Choosing the strech parameter λ of the Kamrad-Ritchken method such that the barrier is hit exactly [234]
- Rogers-Stapleton Method Tree with random time steps corresponding to hitting times [82]

3.1.3 Finite-Difference

- Gauss Method Finite-difference algorithm with an interpolation scheme
- Finite Element Method Finite Element Method [133]

3.1.4 Montecarlo

- Baldi-Caramellino-Iovino Method Large deviations technique [192]

3.2 Discrete Barrier Option

3.2.1 Approximation

- Broadie-Glassermann-Kou Method A continuity correction for discrete barrier options [265]
- Fusai-Abrahams-Sgarra Method Analitycal Solution for Discrete Barrier Options [63]
- Finite Difference Finite-difference algorithm.
- Tree Cheuk-Vorst algorithm [282].

3.2.2 Montecarlo

- Variance Reduction Reduction variance methods

4 Barrier American Options

4.1 Call, Put In-Out/Down-Up

4.1.1 Trees

- Derman Kani Ergener Bardhan Algorithm Interpolation scheme for improving the pricing error of a binomial method [123]
- Ritchken Trinomial Algorithm Choosing the strech parameter λ of the Kamrad-Ritchken method such that the barrier is hit exactly [234]

4.1.2 Finite-Difference

- Psor Method Psor Finite-difference algorithm with interpolation scheme [65]
- Cryer's Algorithm Pivoting method to solve directly linear complementarity problem algorithm with interpolation scheme [66]
- Finite Element Method Finite Element Method [133]

5 Double Barrier European Options In/Out, Parisian in the Black-Scholes Model

5.1 Call, Put In/Out

5.1.1 Analytic

- Kunitomo-Ikeda Formula Pricing formula expressed as the sum of an infinite series [206]

5.1.2 Approximation

- Geman-Yor Method Laplace transform method [204]
- Labart-Lelong Method Laplace transform method for Parisian option [60]

5.1.3 Trees

- Ritchken Trinomial Algorithm Choosing the strech parameter λ of the Kamrad-Ritchken method such that the barrier is hit exactly [234]
- The Binomial Interpolated Lattice Method for Step Double Barrier Options [33]

5.1.4 Finite-Difference

- Gauss Method Finite-difference algorithm with interpolation scheme
- Finite Element Method Finite Element Method [133]

5.1.5 Montecarlo

- Baldi-Caramellino-Iovino Method Large deviations technique [192]

6 Double Barrier American Options In/Out in the Black-Scholes Model

6.1 Call, Put In/Out

6.1.1 Trees

- Ritchken Trinomial Algorithm Choosing the strech parameter λ of the Kamrad-Ritchken method such that the barrier is hit exactly [234]
- The Binomial Interpolated Lattice Method for Step Double Barrier Options [33]

6.1.2 Finite-Difference

- Psor Method Psor Finite-difference algorithm with interpolation scheme [65]
- Cryer's Algorithm Pivoting method to solve directly linear complementarity problem algorithm with interpolation scheme [66]
- Finite Element Method Finite Element Method [133]

7 Lookback European Options in the Black-Scholes Model

7.1 Call, Put Fixed-Floating

7.1.1 Analytic

- Goldman-Sosin-Gatto and Conze-Viswanathan Formula Black-Scholes type formula [181],[259]

7.1.2 Trees

- Babbs Method Change of numeraire technique [260],[281]

7.1.3 Finite-Difference

- Explicit Finite Difference algorithm

7.1.4 Montecarlo

- Anderson-Brotherton-Ratcliffe Method Bias Elimination for efficient simulation procedure [244]

8 Lookback American Options

8.1 Call, Put Fixed-Floating

8.1.1 Trees

- Babbs Method Change of numeraire technique [260],[281]

8.1.2 Finite-Difference

- Explicit Finite Difference algorithm

9 European Asian Options in the Black-Scholes Model

9.1 Call, Put Fixed-Floating

9.1.1 Approximation

- Geman-Yor Method Laplace transform method [204]

9.1.2 Trees

- Forward Shooting Grid Method Barraquand-Pudet or Hull-White enhanced method [279],[31]

- Singular Points Method[306]

9.1.3 Finite-Difference

- Rogers-Shi Method Reduction to a one-dimensional PDE [309]

- Dubois-Lelievre Method New finite difference scheme [76]

- Hameur Breton Ecuyer Method Finite Element Method [176]

9.1.4 Montecarlo

- Kemma-Vorst Method Control variate variance reduction method to compute the price of fixed-strike average-rate options with the approximation of the integral using the law of the brownian bridge [160],[94]
- Glasserman-Heidelberger-Shahabuddin Method Gaussian Importance sampling and stratification computational issue [236],[237],[38]
- Variance Reduction and Robbind-Monro algorithm [40]
- Exact retrospective Monte Carlo computation of arithmetic average Asian options [146]

9.1.5 Approximation

- Rogers-Shi Method Rogers-Shi upper and lower bounds[309]
- Thompson Method Upper and lower bounds [278]
- Levy Formula Lognormal approximation with first two moments.[83]
- Turnbull-Wakeman Formula Edgeworth expansion around a lognormal using first four moments.[168]
- Milevski-Posner Formula Reciprocal gamma distribution using first two moments. [262]
- Fusai-Tagliani Approximation Edgeworth expansion around a normal and maximum entropy approximation using first four logarithmic moments.[25]
- Zhang Approximation Analytical approximation formula with error correction obtained by numerical solution of PDE.[137]
- Laplace-Fourier Algorithm Laplace and Fourier Transform Alogorithm.
- Lord Method Upper and lower bounds [250]
- Lognormal Stratified Sampling Stratified lognormal approximation for Asian options.[136]

10 American Asian Options in the Black-Scholes Model

10.1 Call, Put Fixed-Floating

10.1.1 Trees

- Forward Shooting Grid Method Barraquand-Pudet or Hull-White enhanced method [279],[31]
- Singular Points Method[306]

10.1.2 Finite-Difference

- Hameur Breton Ecuyer Method Finite Element Method

11 Europeen nD Standard Options in the Black-Scholes Model

11.1 CallMax, PutMin, BestOf, Exchange

11.1.1 Analytic

- Stulz and Johnson Formula Black-Scholes type formula [256] ,[120]
- Generalizing the Black-Scholes formula to multivariate contingent claims [286]

11.1.2 Tree

- Boyle-Evnine-Gibbs 4-branches Algorithm General lattice method to price contingent claims on k assets [264]
- Kamrad-Ritchken 5-branches Algorithm 5-branches tree with a stretch parameter λ [235]
- Euler 4-branches Algorithm Stock price paramenters and probabilities obtained from the discretization of the Wiener motion processes [199]
- Product Tree 4-branches Algorithm The tree is the product of two one-dimensional trees

11.1.3 Finite-Difference

- Alterning Direction Implicite Algorithm(ADI) At each time step, one can integrate “in each direction” [149], [150]
- Explicit Method Direct explicit scheme [44]
- Implicit Method Implicit scheme solved with iterative stationary(SOR) and not stationary methods(GMRES and BiCgStab).[290],[203], [65]
- Multigrid Method The elliptic problem is solved by a FMG multigrid algorithm [296]
- Howard Method Implicit scheme solved with iterative Howard Method
- Greedy methods method for basket options

11.1.4 Montecarlo

- Monte Carlo Standard

- Quasi Montecarlo Low discrepancy sequences(Faure, SquareRoot, Halton, Sobol, Niedereitter, Owen's Randomization Technique) [139], [119], [124], [122], [8]

- Variance Reduction Various reduction variance methods(Antithetic Methdod, Stratified Sampling, Control Variate,Moment Matching, Importance Function, Newton) [208],[299],[132] [92]

12 American nD Standard Options in the Black-Scholes Model

12.1 CallMax, PutMin, BestOf, Exchange

12.1.1 Tree

- Boyle-Evnine-Gibbs 4-branches Algorithm General lattice method to price contingent claims on k assets [264]

- Kamrad-Ritchken 5-branches Algorithm 5-branches tree with a stretch parameter λ [235]

- Euler 4-branches Algorithm Stock price paramenters and probabilities obtained from the discretization of the Wiener motion processes [199]

- Product Tree 4-branches Algorithm The tree is the product of two one-dimensional trees

12.1.2 Finite-Difference

- Splitting Adi Method One combines an Adi method with splitting technique [198],[37]

- Splitting Explicit Method Splitting method and an explicit scheme [198]

- Splitting Implicit Method Implicit scheme solved with iterative stationary(SOR) and not stationary methods(GMRES and BiCgStab).[290],[203], [65]

- FMGH Multigrid Method The linear complementarity problem is solved by a FMGH multigrid algorithm

- Howard Method Implicit scheme solved with iterative Howard Method

12.1.3 Montecarlo

- Barraquand-Martineau Algorithm Stratification method. [74]
- Broadie-Glassermann Algorithm Approximation of dynamical programming using a stochastic mesh method. [228]
- Tsitsiklis-VanRoy Algorithm Approximation of dynamical programming using regression method.[255],[254]
- Longstaff-Schwartz Algorithm Estimation of optimal stopping time using regression method. Variance Reduction.[89],[210]
- Pages-Bally Algorithm Approximation of dynamical programming using quantization method. [284]
- Broadie-Glassermann Algorithm Simulation algorithm for estimating the prices of American option with exercise opprtunities in a finite set of times. [227]
- Lions Regnier Algorithm Method based on Malliavin Calculus. [178]
- Barty Roy Strugarek Algorithm Stochastic algorithm. [158]
- Ehrlichman Henderson Algorithm Adaptive control variates for pricing multi-dimensional American options.[271]
- Andersen-Broadie Algorithm Primal-Dual Simulation Algorithm for Pricing Multidimensional American Options. [187]
- Broadie-Cao Algorithm Improved lower and upper bound algorithm for pricing American options by simulation. [188]
- Pricing and Hedging American-Style Options: A Simple Simulation-Based Approach[295]
- Pricing Convertible Bonds with Call Protection[58],[21]
- Nonparametric Variance Reduction Methods on Malliavin Calculus.[26]
- Pricing high-dimensional Bermudan options using the stochastic grid method[77]
- The Stochastic Grid Bundling Method: Efficient Pricing of Bermudan Options and their Greeks[129]
- Pricing American-Style Options by Monte Carlo Simulation: Alternatives to Ordinary Least Squares. [303]

12.1.4 Sparse Grid

- The effect of coordinate transformations for sparse grid pricing of basket options [56]

13 Standard European Options in the Merton Model

13.1 Call, Put, CallSpread, Digit

13.1.1 Analytic

- Merton Formula Pricing formula expressed as the sum of an infinite series. [246]

13.1.2 Approximation

- Carr-Madan Approximation Fourier Transform Algorithm [69]
- Static Hedging of Standard Options [52]
- Smart expansion and fast calibration for jump diffusions[84]

13.1.3 Finite-Difference

- Explicit Method Direct explicit scheme [44]
- Imp-Exp Method Splitting in Implicit and Explicit algorithm [130]
- ADI-FFT Method ADI-FFT algorithm [130]

13.1.4 Montecarlo

- Monte Carlo Standard
- Malliavin Monte Carlo in Pure Jump Model[162]
- Malliavin Monte Carlo in Merton Model

14 Standard American Options in the Merton Model

14.1 Call, Put, CallSpread, Digit

14.1.1 Finite-Difference

- Splitting Explicit Method The obstacle problem is splitted in two steps. Explicit finite-difference algorithm [198]
- Splitting ADI-FFT Method The obstacle problem is splitted in two steps. ADI-FFT finite-difference algorithm [130],[307]

15 Standard European Options in the Dupire-Local Volatility Model

15.1 Call, Put, CallSpread, Digit

15.1.1 Finite-Difference

- Implicit Method Implicit scheme [44]
- Adaptative Finite Element Method Adaptative time step and space varies to improve precision.[91] [32]
- Numerical algorithms for backward differential equations in local volatility models and BS n-dimensional model [81]

15.1.2 Montecarlo

- Monte Carlo with variance reduction

15.1.3 Approximation

- Analytical formulas for local volatility model with stochastic rates.[85]

16 Standard European Options in the CEV Model

16.1 Call, Put

16.1.1 Approximation

- New approximations in local volatility models.[24]

17 Standard Options in the BSCIR Model

- A robust tree method for pricing American options with the Cox-Ingersoll-Ross interest rate model.[305]

18 Standard Options in the BSHW Model

- A hybrid tree-finite difference approach for Heston-Hull-White type model[36]

19 Standard European Options in the Hull-White,Stein,Scott Model

19.1 Call, Put, CallSpread, Digit

19.1.1 Montecarlo

- Variance Reduction and Robbind-Monro algorithm [40], [29]
- A generalization of the Hull and White formula with applications to option pricing approximation [78]
- Multi-level Monte Carlo path simulation[191]
- A Stochastic Volatility Alternative to SABR[288]
- Empirical martingale simulation of asset prices[75]
- Multi-level Monte Carlo path simulation[191]
- High order discretization schemes for stochastic volatility models.[147]

20 Standard European Options in the Heston Model

20.1 Call, Put, CallSpread, Digit

20.1.1 Montecarlo

- Heston Closed-Form Solution [268],[251]
- Variance Reduction and Robbind-Monro algorithm[40]
- Finite Difference method.
- Functional quantization algorithms for Asian options[112].
- Ninomiya-Victoir Scheme approximation of SDE for Asian options[213]
-
- Kusouka-Ninomiya-Ninomiya Scheme approximation of SDE for Asian options[197]
- A second-order discretization scheme for the CIR process: application to the Heston model[15]
- Efficient Simulation of the Heston Stochastic Volatility Model[172]
- An almost exact simulation method for the Heston model [247]

- Fast strong approximation Monte-Carlo schemes for stochastic volatility models [50]
- Exact Simulation of Option Greeks under Stochastic Volatility and Jump Diffusion Model[214]chjos11
- A Comparison of Biased Simulation Schemes for Stochastic Volatility Models[252]
- Efficient, Almost Exact Simulation of the Heston Stochastic Volatility Model[27]
- A Simple and Exact Simulation Approach to Heston Model[157]
- A.Alfonsi A.Ahdida High order discretization of Wishart process.
- Polynomial Processes and their applications to mathematical Finance[153]
- Time dependent Heston model[86]
- A Novel Option Pricing Method based on Fourier-Cosine Series Expansions[97]
- Pricing early-exercise and discrete barrier options by Fourier-cosine series expansions[96]
- A Fourier-based valuation method for Bermudan and barrier options under Heston's model[95]
- Pricing options under stochastic volatility : a power series approach[19]
- Gamma expansion of the Heston stochastic volatility model[109]
- Fast and Accurate Long Stepping Simulation of the Heston Stochastic Volatility Model[138]
- Wiener-Hopf methods for Heston model
- Robust Approximations for Pricing Asian Options and Volatility Swaps Under Stochastic Volatility.[103]
- Small-time asymptotics for implied volatility under the Heston model[104]
- Robust approximations for pricing Asian options and volatility swaps under stochastic volatility[105]
- A Mean-Reverting SDE on Correlation Matrices[5]
- Efficient Simulation of the Double Heston Model[108]
- Importance sampling and Statistical Romberg Method
- A Multifactor Volatility Heston Model[134]

- General approximation schemes for option prices in stochastic volatility models[164]
- Simple Simulation Scheme for CIR and Wishart Processes[219]
- Low-bias simulation scheme for the Heston model by Inverse Gaussian approximation.[294]
- The 4/2 Stochastic Volatility Model.[193]
- Coupling Importance Sampling and Multilevel Monte Carlo using Sample Average Approximation. [12]

20.1.2 Finite Difference

- Finite Difference Schemes
- Componentwise splitting methods for pricing American options under stochastic volatility[155]
- ADI finite difference schemes for option pricing in the Heston model with correlation[125]
- ADI schemes with Ikonen-Toivanen splitting for pricing American put options in the Heston model.[274]
- A hybrid tree-finite difference approach for the Heston model[35]

20.1.3 Tree

- A Tree-based Method to price American Options in the Heston Model[4]

21 Standard European Options in the Heston-Local Volatility Model

- Being particular about calibration.[116]
- The Heston Stochastic-Local Volatility Model: Efficient Monte Carlo Simulation.[28]

22 Standard European Options in the Heston Model with Stochastic Interest Rates

- On The Heston Model with Stochastic Interest Rates[113]
- A hybrid tree-finite difference approach for Heston-Hull-White type model[36]
- Alternating direction implicit finite difference schemes for the Heston Hull-White partial differential equation.[273]

23 UVM Model

-
- On the Fourier cosine series expansion (COS) method for stochastic control problems.[258]
- Numerical methods and volatility models for valuing cliquet options[297]

24 Standard European Options in the Bergomi Model

- Option pricing for a lognormal stochastic volatility model.[270]

25 Standard European Options in the Foque Papanicolau Sircar Model

- Monte Carlo methods with variance reduction.[156]

26 Standard European Options in the Multi-Factor Foque Papanicolau Sircar Model

- Finite Difference method.

27 Standard European Options and Barrier Options in Exponential Lévy models

Fourier transform [276],[184] and Finite difference methods [239],[293],Wiener-Hopf[216], Closed Formulas for pricing American, Barrier options and Lookback options in Kou model [165],[166], Pricing Fast pricing of American and barrier options under Levy processes[266], Tree methods[182]

- Merton's model (X has Gaussian jumps)
- Lévy processes with Brownian component (Kou).
- Tempered stable process, variance gamma.
- Normal inverse Gaussian.
- Monte Carlo for pricing Exotics options in jump models [73].
- Backward Convolution Algorithm for Discretely Sampled Asian Options [57].

- Computing exponential moments of the discrete maximum of a Levy process and lookback options [100]
- Estimating Greeks in Simulating Levy-Driven Models[232]
- Finite intensity Levy process with non-parametric (calibrated) Lévy measure.
- Fourier space time-stepping for option pricing with Levy models[240]
- Saddlepoint methods for option pricing[54]
- Saddlepoint Approximations for Affine Jump-Diffusion Models[110]
- Importance sampling and Statistical Romberg Method for jump models
- Importance sampling for jump processes and applications to finance[174]
- Two-dimensional Fourier cosine series expansion method for pricing financial options. [257]

28 Path Dependent Options in Exponential Lévy models

- Barrier options and Lookback options in Kou model. [165],[166], Pricing
- Discretely Monitored Asian Options under Levy Processes. [17]
- Pricing Discretely Monitored Asian Options by Maturity Randomization. [195]
- Wiener-Hopf techniques for Lookback options in Levy models. O. Kudryavtsev
- Efficient pricing of Asian options under Levy processes based on Fourier cosine expansions. Part I: European-style products. B.Zhang C.W.Oosterlee. [49]
- A Wiener-Hopf Monte Carlo simulation technique for Lévy process . A. Kuznetsov, A.E.Kyprianou J. C. Pardo and K. van Schaik. [3]
- A Wiener-Hopf Monte Carlo simulation approach for pricing path-dependent options under Lévy process. O. Kudryavtsev [217]
- Efficient variations of the Fourier transform in applications to option pricing. S. Boyarchenko and S.Levendorski. [267]

29 Standard European Options in Stochastic volatility models with jumps

- Bates model.
- Barndorff-Nielsen and Shephard OU-SV model.
- Exponential LÃl'vy models with stochastic time change, given by an integrated stochastic volatility process.

30 Pricing European options in affine jump-diffusion

- Non-Gaussian Ornstein–Uhlenbeck-based models and some of their uses in financial economics[39]
- Stochastic volatility for Lévy processes.[183]
- Transform Analysis and Asset Pricing for Affine Jump-Diffusions [161]

31 Calibration in the Dupire Model

- Numerical solution of an inverse problem.[249],[207],
- Mercurio-Brigo Lognormal-mixture dynammics and calibration to market [98]
- Weighted Monte-Carlo Approach [185]
- Inference of a consistent implied volatility under a minimum of entropy criterion [186]
- Tree calibration algorithm [79],[41]
- Empirical semi-groups and calibration[285]

32 Calibration in Stochastic Volatility and Jump Model

- Calibration in a Heston-Merton Model[22]
- Algorithm of Andersen Andreasen [169],[22].
- Non-parametric exponential Lévy models[276]
- European Options Sensitivity with Respect to the Correlation for Multidimensional Heston Models.[72]
- A hybrid tree-finite difference approachfor the Bates model[34]
- A.Achdou D.Pommier T.Arnarson : Calibration of American options in Levy models.

33 Pricing Interest Rate Derivatives

33.1 Zero-Coupon Bond,Coupon Bearing,European, American Option on ZCB,Cap/Floor,Swaptions, Bermudan Swaptions

33.1.1 Vasicek,Hull-White,Hul-White 2D

- Closed Formula and Implicit Finite Difference Methods [140]
- Hull-White Trinomial Tree[142],[141]

33.1.2 Cir,Cir++

- Closed Formula
- Explicit and Implicit Finite Difference Methods
- Trinomial Tree[142],[141]
- Teichmann-Bayer:Cubature on Wiener space in infinite dimension. Finite difference methods for SPDEs and HJM-equations[154]

33.1.3 Black-Karasinski

- Trinomial Tree[142],[99]

33.1.4 Squared-Gaussian

- Schmidt Lattice[298]
- Closed Formula [102]

33.1.5 Li,Ritchken,Sankarasubramanian

- Li,Ritchken,Sankarasubramanian Lattice Methods [16]
- Carr-Yang American Monte Carlo Methods[222]

33.1.6 Bahr-Chiarella

- ADI Finite Difference [241]

33.1.7 LMM Models

- Black Formula
- Approximation of Swaptions [11]
- Monte Carlo Methods [230],[231],[11]
- Tang Lange Bushy tree methods[304]
- Pedersen Monte Carlo Methods[225]
- Andersen Monte Carlo Methods[?]
- Jump Diffusion Libor Market Model[229]
- LMM-CEV :Closed Formula, Monte Carlo[171]
- The Levy LIBOR model[80]
- Extended Libor market models with stochastic volatility[243]
- Iterative Construction of Optimal Bermudan stopping time [14]
- True upper bounds for Bermudean products via Non-Nested Monte Carlo. [68]
- Pricing and hedging callable Libor exotics in forward Libor models [292]
- A stochastic volatility forward Libor model with a term structure of volatility smiles [291]
- A new approach to LIBOR modeling [159]
- Iterating cancelable snowballs and related exotics in a many-factor Libor model [152],[126]
- Jump-adapted discretization schemes for Levy-driven SDEs [13]
- Efficient and accurate log-Lévy approximations to Lévy driven models [220]

33.1.8 Hunt Kennedy Pellser Markov-functional interest rate models

- Monte Carlo [128]
- An n-Dimensional Markov-functional Interest Rate Model [170]

33.1.9 Affine Models

- Collin-Dufresne Goldstein Algorithm [224]
- Finite Difference Algorithm for Affine 3D Gaussian Model [224]

33.1.10 Multi-factor quadratic term structure models

- The eigenfunction expansion method in multi-factor quadratic term structure models[46]

34 Calibration Interest Rate Derivatives

- Calibration in LMM Model [151]
- Calibration in LMM-Jump Model [67]
- Calibration in LMM-Stochastic Volatility model [68]

35 Pricing Inflation Derivatives

- Pricing Inflation-Indexed Derivatives in Jarrow-Yildirim model [212]
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