Premia 22

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 [241]
- Stochastic expansion for the pricing of call options with discrete dividends. [268]

1.1.2 Tree

- Cox Ross Rubinstein Binomial Binomial algorithm with the Cox-Ross-Rubinstein stock price parameters and probabilities [240]
- Extended Cox Ross Rubinstein Binomial Two steps backward CRR scheme, for a better accuracy of the Greeks [25]
- Hull White Binomial Binomial algorithm with the Hull-White stock price parameters and probabilities modified to account for dividends [35]
- 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 [278]
- 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[308]
- Moment and Matching Strike Algorithm Binomial tree with Moment and Matching Strike Algorithm[51]

- Efficient pricing of derivatives on assets with discrete dividends[233]
- Pricing American barrier options with discrete dividends by binomial trees[229]
- Smooth convergence in the binomial model[207]

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 [53]
- Explicit Method Direct explicit scheme [53]
- Iterative Sor Method For a given time step the elliptic problem is solved by the iterative method Sor(Successive Overrelaxation) [53]
- Multigrid Method For a given time step the elliptic problem is solved by a FMG Multigrid algorithm [352]
- Adaptative Finite Element Method Adaptative time step and space varies to improve precision.[106] [37]
- 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) [162], [138], [144], [141], [10]
- Variance Reduction Various reduction variance methods(Antithetic Methdod, Stratified Sampling, Control Variate,Moment Matching, Importance Function, Newton,Malliavin Calculus for Digital Options) [248],[355],[152] [107]
- Scaling and multiscaling in financial series: a simple model [23]

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 [240]

- Extended Cox Ross Rubinstein Binomial Two steps backward CRR scheme, for a better accuracy of the Greeks [25]
- Hull White Binomial Binomial algorithm with the Hull-White stock price parameters and probabilities modified to account for dividends [35]
- 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 [278]
- Third Moment Trinomial tree with matching first three moments
- Breen Accelerated Binomial The Breen accelerated method approximates the Geske-Johnson option pricing formula [286]
- Broadie-Detemple BBSR Binomial Black-Scholes modification of binomial algorithm with Richardson extrapolation [155]
- 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[308]
- Moment and Matching Strike Algorithm Binomial tree with Moment and Matching Strike Algorithm[51]
- Smooth convergence in the binomial model[207]

2.1.2 Finite-Difference

- Brennan-Schwartz Algorithm The Brennan-Schwartz algorithm solves the linear complementarity problem [105],[54]
- Splitting Gauss Method The obstacle problem is splitted in two steps. Theta-method finite difference algorithm [237]
- Splitting Explicit Method The obstacle problem is splitted in two steps. Explicit finite-difference algorithm [237]
- Iterative Psor Method Projected SOR algorithm is used to solve large-scale linear complementarity problem [77]
- Cryer's Algorithm Pivoting method to solve directly linear complementarity problem [78]
- 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 [359]

2.1.3 Montecarlo

- Barraquand-Martineau Algorithm Stratification method. [87]
- Broadie-Glassermann Algorithm Approximation of dynamical programming using a stochastic mesh method. [270]
- Tsitsiklis-VanRoy Algorithm Approximation of dynamical programming using regression method.[299],[298]
- Longstaff-Schwartz Algorithm Estimation of optimal stopping time using regression method.[104]
- Pages-Bally Algorithm Approximation of dynamical programming using quantization method. [336]
- Broadie-Glassermann Algorithm Simulation algorithm for estimating the prices of American option with exercise opprtunities in a finite set of times. [269]
- Rogers Algorithm Method based on martingale Lagrangian. [297]
- Lions Regnier Algorithm Method based on Malliavin Calculus. [214]
- Barty Roy Strugarek Algorithm Stochastic algorithm.[184]
- Pricing and Hedging American-Style Options: A Simple Simulation-Based Approach[350]

2.1.4 Approximation

- MacMillan Approximation Quadratic method based on exact solutions to approximations of the partial differential equation [215]
- Whaley Approximation Quadratic method based on exact solutions to approximations of the partial differential equation [292]
- Bjerksund-Stensland Approximation The approximation is based on an exercise strategy corresponding to a flat exercise boundary [134]
- Ho-Stapleton-Subrahmanyam Approximation 2-points approximation formula with exponential extrapolation [331]
- Bunch-Johnson Approximation 2-points Geske-Johnson approximation formula [140]
- Carr Approximation Randomization and the American Put [61]
- Ju Approximation Pricing an American Option by approximating Its Early Exercise Boundary as a Multipiece Exponential Function [249]
- Broadie-Detemple LBA and LUBA Methods Approximation methods based on lower and upper bounds [155]

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 [239]
- Labart-Lelong Method Laplace transform method for Parisian option[71]
- Static Hedging of Standard Options.[216]

3.1.2 Trees

- Derman Kani Ergener Bardhan Algorithm Interpolation scheme for improving the pricing error of a binomial method [143]
- Ritchken Trinomial Algorithm Choosing the strech parameter λ of the Kamrad-Ritchken method such that the barrier is hit exactly [277]
- Rogers-Stapleton Method Tree with random time steps corresponding to hitting times [96]

3.1.3 Finite-Difference

- Gauss Method Finite-difference algorithm with an interpolation scheme
- Finite Element Method Finite Element Method [153]

3.1.4 Montecarlo

- Baldi-Caramellino-Iovino Method Large deviations technique [231]

3.2 Discrete Barrier Option

3.2.1 Approximation

- Broadie-Glassermann-Kou Method A continuity correction for discrete barrier options [312]
- Fusai-Abrahams-Sgarra Method Analitycal Solution for Discrete Barrier Options [75]
- Finite Difference Finite-difference algorithm.
- Tree Cheuk-Vorst algorithm [333].

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 [143]
- Ritchken Trinomial Algorithm Choosing the strech parameter λ of the Kamrad-Ritchken method such that the barrier is hit exactly [277]

4.1.2 Finite-Difference

- Psor Method Psor Finite-difference algorithm with interpolation scheme [77]
- Cryer's Algorithm Pivoting method to solve directly linear complementarity problem algorithm with interpolation scheme [78]
- Finite Element Method Finite Element Method [153]

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 [246]

5.1.2 Approximation

- Geman-Yor Method Laplace transform method [244]
- Labart-Lelong Method Laplace transform method for Parisian option [71]

5.1.3 Trees

- Ritchken Trinomial Algorithm Choosing the strech parameter λ of the Kamrad-Ritchken method such that the barrier is hit exactly [277]
- The Binomial Interpolated Lattice Method for Step Double Barrier Options [38]

5.1.4 Finite-Difference

- Gauss Method Finite-difference algorithm with interpolation scheme
- Finite Element Method Finite Element Method [153]

5.1.5 Montecarlo

- Baldi-Caramellino-Iovino Method Large deviations technique [231]

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 [277]
- The Binomial Interpolated Lattice Method for Step Double Barrier Options [38]

6.1.2 Finite-Difference

- Psor Method Psor Finite-difference algorithm with interpolation scheme [77]
- Cryer's Algorithm Pivoting method to solve directly linear complementarity problem algorithm with interpolation scheme [78]
- Finite Element Method Finite Element Method [153]

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 [219],[303]

7.1.2 Trees

- Babbs Method Change of numeraire technique [305],[332]

7.1.3 Finite-Difference

- Explicit Finite Difference algorithm

7.1.4 Montecarlo

- Anderson-Brotherton-Ratcliffe Method Bias Elimination for efficient simulation procedure [288]

8 Lookback American Options

8.1 Call, Put Fixed-Floating

8.1.1 Trees

- Babbs Method Change of numeraire technique [305],[332]

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 [244]

9.1.2 Trees

- Forward Shooting Grid Method Barraquand-Pudet or Hull-White enhanced method [330],[36]
- Singular Points Method[363]

9.1.3 Finite-Difference

- Rogers-Shi Method Reduction to a one-dimensional PDE [366]
- Dubois-Lelievre Method New finite difference scheme [89]
- Hameur Breton Ecuyer Method Finite Element Method [208]

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 [186],[109]
- Glasserman-Heidelberger-Shahabuddin Method Gaussian Importance sampling and stratification computational issue [279],[280],[43]
- Variance Reduction and Robbind-Monro algorithm [45]
- Exact retrospective Monte Carlo computation of arithmetic average Asian options [172]

9.1.5 Approximation

- Rogers-Shi Method Rogers-Shi upper and lower bounds[366]
- Thompson Method Upper and lower bounds [329]
- Levy Formula Lognormal approximation with first two moments.[97]
- Turnbull-Wakeman Formula Edgeworth expansion around a lognormal using first four moments.[198]
- Milevski-Posner Formula Reciprocal gamma distribution using first two moments. [307]
- Fusai-Tagliani Approximation Edgeworth expansion around a normal and maximum entropy approximation using first four logarithmic moments.[30]
- Zhang Approximation Analytical approximation formula with error correction obtained by numerical solution of PDE.[157]
- Laplace-Fourier Algorithm Laplace and Fourier Transform Algorithm.
- Lord Method Upper and lower bounds [294]
- Lognormal Stratified Sampling Stratified lognormal approximation for Asian options.[156]

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 [330],[36]
- Singular Points Method[363]

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 [300] ,[139]
- Generalizing the Black-Scholes formula to multivariate contingent claims [338]

11.1.2 Tree

- Boyle-Evnine-Gibbs 4-branches Algorithm General lattice method to price contingent claims on k assets [309]
- Kamrad-Ritchken 5-branches Algorithm 5-branches tree with a stretch parameter λ [278]
- Euler 4-branches Algorithm Stock price paramenters and probabilities obtained from the discretization of the Wiener motion processes [238]
- 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" [175], [176]
- Explicit Method Direct explicit scheme [53]
- Implicit Method Implicit scheme solved with iterative stationary(SOR) and not stationary methods(GMRES and BiCgStab).[345],[242], [77]
- Multigrid Method The elliptic problem is solved by a FMG multigrid algorithm [352]
- 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) [162], [138], [144], [141], [10]
- Variance Reduction Various reduction variance methods(Antithetic Methdod, Stratified Sampling, Control Variate,Moment Matching, Importance Function, Newton) [248],[355],[152] [107]

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 [309]
- Kamrad-Ritchken 5-branches Algorithm 5-branches tree with a stretch parameter λ [278]
- Euler 4-branches Algorithm Stock price paramenters and probabilities obtained from the discretization of the Wiener motion processes [238]
- 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 [237],[42]
- Splitting Explicit Method Splitting method and an explicit scheme [237]
- Splitting Implicit Method Implicit scheme solved with iterative stationary(SOR) and not stationary methods(GMRES and BiCgStab).[345],[242], [77]
- 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. [87]
- Broadie-Glassermann Algorithm Approximation of dynamical programming using a stochastic mesh method. [270]
- Tsitsiklis-VanRoy Algorithm Approximation of dynamical programming using regression method.[299],[298]
- Longstaff-Schwartz Algorithm Estimation of optimal stopping time using regression method. Variance Reduction.[104],[250]
- Pages-Bally Algorithm Approximation of dynamical programming using quantization method. [336]
- Broadie-Glassermann Algorithm Simulation algorithm for estimating the prices of American option with exercise opprtunities in a finite set of times. [269]
- Lions Regnier Algorithm Method based on Malliavin Calculus. [214]
- Barty Roy Strugarek Algorithm Stochastic algorithm. [184]
- Ehrlichman Henderson Algorithm Adaptive control variates for pricing multi-dimensional American options.[320]
- Andersen-Broadie Algorithm Primal-Dual Simulation Algorithm for Pricing Multidimensional American Options. [225]
- Broadie-Cao Algorithm Improved lower and upper bound algorithm for pricing American options by simulation. [226]
- Pricing and Hedging American-Style Options: A Simple Simulation-Based Approach[350]
- Pricing Convertible Bonds with Call Protection[69],[26]
- Nonparametric Variance Reduction Methods on Malliavin Calculus.[31]
- Pricing high-dimensional Bermudan options using the stochastic grid method[91]
- The Stochastic Grid Bundling Method: Efficient Pricing of Bermudan Options and their Greeks[149]
- Pricing American-Style Options by Monte Carlo Simulation: Alternatives to Ordinary Least Squares. [360]
- Dual pricing of American options by Wiener chaos expansion[168]
- Pricing Bermudan Options via Multilevel Approximation Methods.[79]
- Pricing path-dependent Bermudan options using Wiener chaos expansion: an embarrassingly parallel approach. [169]
- Pricing American Options by Exercise Rate Optimization [46]

12.1.4 Sparse Grid

- The effect of coordinate transformations for sparse grid pricing of basket options [67]

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. [290]

13.1.2 Approximation

- Carr-Madan Approximation Fourier Transform Algorithm [82]
- Static Hedging of Standard Options [62]
- Smart expansion and fast calibration for jump diffusions[99]

13.1.3 Finite-Difference

- Explicit Method Direct explicit scheme [53]
- Imp-Exp Method Splitting in Implicit and Explicit algorithm [150]
- ADI-FFT Method ADI-FFT algorithm [150]
- Application of the improved fast Gauss transform to option pricing under jump-diffusion processes.[325]

13.1.4 Montecarlo

- Monte Carlo Standard
- Malliavin Monte Carlo in Pure Jump Model[188]
- 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 [237]
- Splitting ADI-FFT Method The obstacle problem is splitted in two steps. ADI-FFT finite-difference algorithm [150],[364]

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 [53]
- Adaptative Finite Element Method Adaptative time step and space varies to improve precision.[106] [37]
- Numerical algorithms for backward differential equations in local volatility models and BS n-dimensional model [95]

15.1.2 Montecarlo

- Monte Carlo with variance reduction
- Unbiased simulation of stochastic differential equations[253]

15.1.3 Approximation

- Analytical formulas for local volatility model with stochastic rates.[101]

16 Standard European Options in the CEV Model

16.1 Call, Put

16.1.1 Approximation

- New approximations in local volatility models.[29]

16.1.2 Tree

- Efficient Binomial tree for the discretization of the CEV model[98]

17 Standard Options in the BSCIR Model

- A robust tree method for pricing American options with the Cox-Ingersoll-Ross interest rate model.[362]

18 Standard Options in the BSHW Model

- A hybrid tree-finite difference approach for Heston-Hull-White type model[40]

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 [45], [34]
- A generalization of the Hull and White formula with applications to option pricing approximation [92]
- Multi-level Monte Carlo path simulation[230]
- A Stochastic Volatility Alternative to SABR[341]
- Empirical martingale simulation of asset prices[88]
- Multi-level Monte Carlo path simulation[230]
- High order discretization schemes for stochastic volatility models.[173]

20 Standard European Options in the Heston Model

20.1 Call, Put, CallSpread, Digit

20.1.1 Approximation and Monte Carlo

- Heston Closed-Form Solution [316],[295]
- Variance Reduction and Robbind-Monro algorithm[45]
- Finite Difference method.
- Functional quantization algorithms for Asian options[131].
- Ninomiya-Victoir Scheme approximation of SDE for Asian options[254]
-

- Kusouka-Ninomiya-Ninomiya Scheme approximation of SDE for Asian options[236]
- A second-order discretization scheme for the CIR process: application to the Heston model[19]
- Efficient Simulation of the Heston Stochastic Volatility Model[204]
- An almost exact simulation method for the Heston model [291]
- Fast strong approximation Monte-Carlo schemes for stochastic volatility models [59]
- Exact Simulation of Option Greeks under Stochastic Volatility and Jump Diffusion Model[255]chjos11
- A Comparison of Biased Simulation Schemes for Stochastic Volatility Models[296]
- Efficient, Almost Exact Simulation of the Heston Stochastic Volatility Model[32]
- A Simple and Exact Simulation Approach to Heston Model[183]
- A.Alfonsi A.Ahdida High order discretization of Wishart process.
- Polynomial Processes and their applications to mathematical Finance[179]
- Time dependent Heston model[100]
- A Novel Option Pricing Method based on Fourier-Cosine Series Expansions[112]
- Pricing early-exercise and discrete barrier options by Fourier-cosine series expansions[111]
- A Fourier-based valuation method for Bermudan and barrier options under Heston's model[110]
- Pricing options under stochastic volatility : a power series approach[24]
- Gamma expansion of the Heston stochastic volatility model[126]
- Fast and Accurate Long Stepping Simulation of the Heston Stochastic Volatility Model[161]
- Wiener-Hopf methods for Heston model
- Robust Approximations for Pricing Asian Options and Volatility Swaps Under Stochastic Volatility.[118]
- Small-time asymptotics for implied volatility under the Heston model[119]
- Robust approximations for pricing Asian options and volatility swaps under stochastic volatility[120]

- A Mean-Reverting SDE on Correlation Matrices[6]
- Efficient Simulation of the Double Heston Model[125]
- Importance sampling and Statistical Romberg Method
- A Multifactor Volatility Heston Model[154]
- General approximation schemes for option prices in stochastic volatility models[193]
- Simple Simulation Scheme for CIR and Wishart Processes[261]
- Low-bias simulation scheme for the Heston model by Inverse Gaussian approximation.[349]
- The 4/2 Stochastic Volatility Model.[232]
- Coupling Importance Sampling and Multilevel Monte Carlo using Sample Average Approximation. [16]
- Ninomiya-Victoir scheme: strong convergence, antithetic version and application to multilevel estimators.[2]
- Option price with stochastic volatility for both fast and slow mean-reverting regimes. [124]
- Antithetic multilevel Monte Carlo estimation for multi-dimensional SDEs without Lévy area simulation. [50]
- Robust pricing of European Options with Wavelets and the Characteristic Function.[201]
- American option pricing under the double Heston model based on asymptotic expansion.[304]

20.1.2 Finite Difference

- Finite Difference Schemes
- Componentwise splitting methods for pricing American options under stochastic volatility[181]
- ADI finite difference schemes for option pricing in the Heston model with correlation[145]
- ADI schemes with Ikonen-Toivanen splitting for pricing American put options in the Heston model.[324]
- A hybrid tree-finite difference approach for the Heston model[41]
- The evaluation of barrier option prices under stochastic volatility.[66]

20.1.3 Tree

- A Tree-based Method to price American Options in the Heston Model[340] item Pricing via Quantization in Stochastic Volatility Models.

21 Standard European Options in the Heston-Local Volatility Model

- Being particular about calibration.[160]
- The Heston Stochastic-Local Volatility Model: Efficient Monte Carlo Simulation.[33]
- An adjoint method for the exact calibration of Stochastic Local Volatility models. [243]
- Discretization of class of diffusions nonlinear in the sense of McKean including the calibrated LVSV model.[52]

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

- On The Heston Model with Stochastic Interest Rates[133]
- A hybrid tree-finite difference approach for Heston-Hull-White type model[40]
- Alternating direction implicit finite difference schemes for the Heston Hull-White partial differential equation.[323]

23 SABR Model

- Efficient unbiased simulation scheme for the SABR stochastic volatility model. [351]
- On an efficient multiple time-step Monte Carlo simulation of the SABR model. [5]

24 UVM Model

-
- On the Fourier cosine series expansion (COS) method for stochastic control problems.[302]
- Numerical methods and volatility models for valuing cliquet options[353]

25 Guyon1 and Guyon2d Models

- Path-Dependent Volatility.[158]
- Cross-Dependent Volatility.[159]

26 Standard European Options in the Bergomi Model

- Option pricing for a lognormal stochastic volatility model.[318]

27 Standard European and American Options in the Rough Bergomi Model

- Pricing under Rough volatility.[334]
- Hybrid scheme for Brownian semistationary processes.[218]w
- Pricing American Options by Exercise Rate Optimization [46]

28 Standard European Options in the Foque Papanicolau Sircar Model

- Monte Carlo methods with variance reduction.[182]

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

- Finite Difference method.

30 Standard European Options in 2-hypergeometric stochastic volatility model.

- Option pricing and implied volatilities in a 2-hypergeometric stochastic volatility model.[310]

31 Standard European Options and Barrier Options in Exponential Lévy models

Fourier transform [327],[222] and Finite difference methods [283],[348],Wiener-Hopf[257], Closed Formulas for pricing American, Barrier options and Lookback options in Kou model [194],[195], Pricing Fast pricing of American and barrier options under Levy processes[313], Tree methods[220]

- 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 [86].
- Backward Convolution Algorithm for Discretely Sampled Asian Options [68].
- Computing exponential moments of the discrete maximum of a Levy process and lookback options [115]
- Estimating Greeks in Simulating Levy-Driven Models[274]
- Finite intensity Levy process with non-parametric (calibrated) Lévy measure.
- Fourier space time-stepping for option pricing with Levy models[284]
- Saddlepoint methods for option pricing[64]
- Saddlepoint Approximations for Affine Jump-Diffusion Models[127]
- Importance sampling and Statistical Romberg Method for jump models
- Importance sampling for jump processes and applications to finance[206]
- Two-dimensional Fourier cosine series expansion method for pricing financial options. [301]
- On the application of spectral filters in a Fourier option pricing technique. [342]
- Efficient Solution of Backward Jump-Diffusion PIDEs with Splitting and Matrix Exponentials. [13]
- Robust Barrier Option Pricing by Frame Projection under Exponential Levy Dynamics. [190]
- Ultra-Fast Pricing Barrier Options and CDSs. [315]
- American and exotic option pricing with jump diffusions and other Lévy processes.J. L. Kirkby [191]

32 Path Dependent Options in Exponential Lévy models

- Barrier options and Lookback options in Kou model. [194],[195], Pricing
- Discretely Monitored Asian Options under Levy Processes. [22]
- Pricing Discretely Monitored Asian Options by Maturity Randomization. [234]
- 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. [58]
- A Wiener-Hopf Monte Carlo simulation technique for Lévy process . A. Kuznetsov, A.E.Kyprianou J. C. Pardo and K. van Schaik. [4]
- A Wiener-Hopf Monte Carlo simulation approach for pricing path-dependent options under Lévy process. O. Kudryavtsev [258]
- Efficient variations of the Fourier transform in applications to option pricing. S. Boyarchenko and S.Levendorski. [314]
- Approximate Wiener-Hopf factorization and the Monte Carlo methods for Lévy processes.. O. Kudryavtsev [259]
- An Efficient Transform Method For Asian Option Pricing. J. L. Kirkby[189]

33 Standard European Options in Stochastic volatility models with jumps

- Bates model.
- Barndorff-Nielsen and Shephard OU-SV model.
- Exponential Lévy models with stochastic time change, given by an integrated stochastic volatility process.
- High-Order Splitting Methods for Forward PDEs and PIDEs.. [12]

34 Pricing European options in affine jump-diffusion

- Non-Gaussian Ornstein–Uhlenbeck-based models and some of their uses in financial economics[44]

- Stochastic volatility for Lévy processes.[221]
- Transform Analysis and Asset Pricing for Affine Jump-Diffusions [187]

35 Calibration in the Dupire Model

- Numerical solution of an inverse problem.[293],[247],
- Mercurio-Brigo Lognormal-mixture dynammics and calibration to market [113]
- Weighted Monte-Carlo Approach [223]
- Inference of a consistent implied volatility under a minimum of entropy criterion [224]
- Tree calibration algorithm [93],[47]
- Empirical semi-groups and calibration[337]

36 Calibration in Stochastic Volatility and Jump Model

- Calibration in a Heston-Merton Model[27]
- Algorithm of Andersen Andreasen [199],[27].
- Non-parametric exponential Lévy models[327]
- European Options Sensitivity with Respect to the Correlation for Multidimensional Heston Models.[85]
- A hybrid tree-finite difference approachfor the Bates model[39]
- A.Achdou D.Pommier T.Arnarson : Calibration of American options in Levy models.

37 Pricing Interest Rate Derivatives

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

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

- Closed Formula and Implicit Finite Difference Methods [163]
- Hull-White Trinomial Tree[165],[164]

37.1.2 Cir,Cir++

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