

ICCF24 Conference Program

Tuesday, April 2nd

Start 8:30 AM: Registration

Morning:

9:00 : Welcome

9:15 – 10:00: Plenary 1: **Emmanuel Gobet** (*Ec. Polytechnique, Palaiseau cedex, France*):
“Automated Market Makers in Decentralized Finance: mathematics and numerics”

10:00 – 10:45: Plenary 2: **Alvaro Leita Rodriguez** (*U. Oberta de Catalunya, Spain*): “Quantum computing for computational finance: overview, challenges, opportunities”

10:45 – 11:15: Break, coffee

11:15 – 12:55: Mini-symposium session 1 (4 presentations), 4 rooms

Room 1: Computational Finance I: (by Carlos Vazquez Cendon, Matthias Ehrhardt)

- **Thomas Kruse** (*Wuppertal, Germany*): “Multilevel Picard iteration for high-dimensional semilinear parabolic PDEs”
- **Long Teng** (*Wuppertal, Germany*): “A regression-based approach to solve high-dimensional nonlinear pricing BSDEs”
- **Christina Christara** (*Toronto, Canada*): “Analysis of high-order time stepping schemes for parabolic PDEs with nonsmooth initial conditions”
- **Martyna Zdeb** (*Wroclaw, Poland*): “Modelling and pricing of multi-region catastrophe bonds”

Room 2: Algorithmic trading and market microstructures (by Shuaiqiang Liu)

- **Fenghui Yu** (*Delft, Netherlandst*): “Execution probabilities in a limit order book with stochastic order flows”
- **Danny D. Sun** (*ShenZhen, China*): “Market making in the Chinese stock market: stochastic control and scenario analysis”
- **Xue Cheng** (*Peking, China*): “Optimal execution subject to reservation strategies”
- **Shuaiqiang Liu** (*Delft & ING Bank, Netherlands*): “A generative deep learning model for volatility surfaces implied in the market”

Room 3: PDE methods in Finance (by Karel in 't Hout, Michèle Vanmaele)

- **Fabien Le Floc'h** (*Calypso, Paris, France*): “Instabilities in super time-stepping schemes”
- **Luis Ortiz Gracia** (*U. Barcelona, Spain*): “Climate-related default probability”
- **Karel in 't Hout** (*U. Antwerp, Belgium*): “On the approximation of Greeks for American-style options”
- **Xian-Ming Gu** (*Chengdu, China, and Utrecht, NL*): “A parallel-in-time iterative method for American option pricing”

Room 4: Computational and statistical methods for extremes in finance (by Stéphane Girard)

- **Michaël Allouche** (Kaiko, France) "Learning of extreme Expected Shortfall with neural networks. Application to cryptocurrency data"
- **Yi He** (Amsterdam, Netherlands) "Detecting spurious factor models"
- **Jean Pachebat** (Ecole Polytechnique, France) "Simulation of multivariate extreme events with generative models"
- **Chen Zhou** (Rotterdam, Netherlands) "Estimating probabilities of multivariate failure sets based on pairwise tail dependence coefficients"

13:00 – 14:00 Lunch

Afternoon:

14:00 – 15:40: Mini-symposia session 2 (4 presentations), 4 rooms

Room 1: Financial Modelling (by Griselda Deelstra, Carlos Vazquez Cendón)

- **Griselda Deelstra** (ULB, Brussels, Belgium): "Consistent asset modelling with randomness in the coefficients and switches between regimes"
- **Donatien Hainaut** (U. Louvain-la-Neuve, Belgium): "A mutually exciting rough jump-diffusion for financial modelling"
- **Edouard Motte** (U. Louvain-la-Neuve, Belgium): "Partial hedging in rough volatility models"
- **Iñigo Arregui** (U. A Coruña, Spain): "Models and numerical methods for XVA pricing under mean reversion spreads in a multicurrency framework"

Room 2: Recent advances in transform (Fourier/Laplace) methods for computational finance and insurance, part I (by Chiheb Ben Hammouda, Antonis Papapantoleon)

- **Sergio Pulido** (Paris-Saclay, France): "Affine Volterra processes with jumps"
- **Michael Samet** (RWTH Aachen, Germany): "Optimal damping and hierarchical adaptive quadrature for efficient Fourier pricing of multi-asset options"
- **Xiaoyu Shen** (FF Quant Advisory, Netherlands): "A cosine tensor network for XVA calculations"
- **Evgenii Vladimirov** (Rotterdam, Netherlands): "iCOS: Option-Implied COS Method"

Room3: Optimization and pricing in finance and actuarial science (by Maria do Rosário Grossinho)

- **Anthony Britto** (Karlsruhe Institute of Technology, Germany): "Some practical considerations for regression methods for stochastic control problems involving utility functions"
- **Manuel Guerra** (ISEG & Management Universidade de Lisboa, Portugal): "Optimal reinsurance under the Parisian ruin criterion"
- **Carlos Oliveira** (Norwegian U. Science and Technology, Norway): "How to manage the occurrence of adverse events: adopting risk mitigation measures or exiting?"
- **Ying Ni** (Mälardalens U., Västerås, Sweden): "X Hedging: An explainable artificial intelligence hedging framework"

Room 4: Machine Learning methods in Finance I (by Jasper Rou, Costas Smaragdakis)

- **Costas Smaragdakis** (*Univ. Samos, Greece*): “A deep implicit-explicit minimizing movement method for option pricing in jump-diffusion models”
- **Silvia Lavagnini** (*BI Norwegian Business School, Norway*): “Deep Quadratic Hedging”
- **Alessandro Gnoatto** (*Università degli Studi di Verona, Italy*): “A Deep Solver for BSDEs with Jumps”
- **Yannick Limmer** (*University of Oxford, UK*): “Robust Hedging GANs”

15:40 – 16:00: Coffee/tea break

16:00 – 16:45: Plenary 3: **Christian Bayer** (*WIAS, Berlin, Germany*): “Primal and dual optimal stopping with signatures”

16:50 – 18:05: Contributed talks 1 (3 presentations), 4 rooms

Room 1: Stochastic volatility models

- **Wei Xu** (*Toronto, Canada*): “VIX option pricing for nonparameter Heston stochastic local volatility model”
- **Stefano De Marco** (*Ecole polytechnique, Palaiseau Cedex, France*): “Evaluating skew-stickiness under stochastic and rough volatility”
- **Sarath Kumar Jayaraman** (*Calgary, Canada*): “A general option pricing framework for affine fractionally integrated models”

Room 2: Calibration

- **Bouazza Saadeddine** (*Crédit Agricole, France*): “Fast calibration using complex-step Sobolev training”
- **Guido Gazzani** (*Ecole des Ponts ParisTech, Marne la Vallée, France*): “Pricing and calibration of path-dependent volatility models”
- **Maria Olympia Tsianni** (*Oxford U., UK*): “Convergence of the Euler–Maruyama particle scheme for a regularised McKean–Vlasov equation arising from the calibration of local-stochastic volatility models”

Room 3: Jump processes:

- **Josep Vives** (*U. Barcelona, Spain*): “Approximate option pricing under jump-diffusion stochastic volatility models based on a Hull and White type formula”
- **Sobin Joseph** (*Indian Institute of Science, Bangalore, India*): “Non-parametric Estimation of Multivariate Marked Hawkes process”
- **Ruben Bosch** (*ING Bank, Amsterdam, NL*): “Improved VaR/ES backtesting by using self-exciting point processes”

Room 4: Forecasting:

- **Mohammed Alruqimi** (*Verona, Italy*): “Multistep Brent oil price forecasting by metaheuristic optimization of time-series analysis and deep learning”
- **Pietro Manzoni** (*Milano, Italy*): “Managing overconfidence in time series probabilistic forecasting with an application to electricity load”

- **Jewel Kumar Roy** (*Győr, Hungary*): “Machine learning-based forecasting of stock market indices, commodities prices, cryptocurrency, ESG index, currency exchange rates and bond yields”

Wednesday, April 3rd

Morning:

9:00 – 9:45 : Plenary 4: **Roxana Dumitrescu** (King's College, London, UK): “TBA”

9:45 – 10:30: Plenary 5: **Lech Grzelak** (*Utrecht U. and Rabobank, NL*): “Beyond Affine Models: On Inclusion of Random Parameters in Pricing Models”

10:30 – 11:00: Coffee break

11:00 – 12:40: Mini-symposia session 3 (4 presentations), 3 rooms

Room 1: Computational Finance II (by Kristian Debrabant, Matthias Ehrhardt)

- **Michal Wronka** (*Wroclaw, Poland*): “Modelling of interest rate volatilities with GARCH processes”
- **Lyuben Valkov** (*Ruse, Bulgaria*): “Numerical solution of volatility recovery problems in option pricing”
- **Slavi Georgiev** (*Ruse, Bulgaria*): “Computational recovery of the time-dependent volatility of volatility in the Heston model”
- **Anna Clevenhaus** (*Wuppertal, Germany*): “A gradient-based calibration of the Heston model on real life data”

Room 2: Recent advances in transform (Fourier/Laplace) methods for computational finance and insurance, part II (by Chiheb Ben Hammouda, Antonis Papapantoleon)

- **Laura Ballotta** (*Bayes, London, UK*): “Time changes, Fourier transforms and the joint calibration to the S&P500/VIX Smiles”
- **Chiheb Ben Hammouda** (*Utrecht, NL*): “Empowering Fourier-based pricing methods through quasi-Monte Carlo and domain transformation techniques”
- **Gero Junike** (*Oldenburg, Germany*): “The multidimensional COS method for option pricing.”
- **Fang Fang** (*Delft and FF Quant, NL*): “A cosine tensor network for pricing European, barrier and Bermudan options under rough Heston’s model”

Room 3: Stochastic Optimal Control Problems: New algorithms and new applications (by Yuying Li)

- **Margaret Insley** (*U. Waterloo, Canada*): “Environmental bonds and public liability for resource extraction site cleanup”
- **Zhipeng Huang** (*Utrecht, NL*): “Deep BSDE methods for stochastic control with diffusion control”
- **Christoph Reisinger** (*Oxford U., UK*): “K-nearest-neighbor resampling for off-policy evaluation with applications to trade execution and market making”
- **Yuying Li** (*U. Waterloo, Canada*): “Optimal allocation under constraints using NN without dynamic programming”

12:45 – 13:30 Lunch

Afternoon:

13:45 – 14:30: Plenary 6: **Blanka Horvath** (Oxford U., UK): “TBA”

14:30 – 14:45: Coffee/tea break

14:45 – 16:15: Festivity Peter Forsyth’s age 70!

16:30 – 17:15: Plenary 7: **Peter Forsyth** (*U. Waterloo, Canada*): “Decumulation of Retirement Savings: Are Modern Tontines the Solution?”

Followed by drinks, celebration party 17:30-19:00

Thursday, April 4th

Morning:

9:00 – 9:45 : Plenary 8: **Irene Monasterolo** (*Utrecht U., NL*): “Climate credit risk and corporate valuation”

9:45 – 10:00: Coffee break

10:00 – 11:40: Mini-symposia session 4 (4 presentations), 4 rooms

Room 1: Computational Finance III (by Lyuben Valkov, Matthias Ehrhardt)

- **Ray Ruining Wu** (*U. Toronto, Canada*): “The sparse grid combination method for multidimensional Black-Scholes partial differential equations”
- **Daniel Sevcovic** (*U. Bratislava, Slovakia*): “Multidimensional linear and nonlinear partial integro-differential equation in Bessel potential spaces with application in option pricing”
- **Pascal Halffmann** (*Kaiserslautern, Germany*): “Risk management in portfolio optimization: A multicriteria approach”
- **Cyril Izuchukwu Udeani** (*U. Bratislava, Slovakia*): “Approximating the solution operator of nonlinear parabolic equations arising from portfolio selection using deep learning.”

Room 2: Climate risk and financial risk impact (by Ying Jiao):

- **Aurélien Alfonsi** (*Ecole des Ponts, France*): “Risk valuation of quanto derivatives on temperature and electricity.”
- **Florian Bourgey** (*Bloomberg, USA*): “Climate risk assessment of a large-sized credit portfolio”
- **Ying Jiao** (*Lyon, France*): “ESG considerations and portfolio choice in a multi-period model “
- **Elisa Ndiaye** (*Ecole Polytechnique and BNP Paribas, France*): “Optimal business model adaptation plan for a company under a transition scenario”

Room 3: Machine Learning methods in Finance II (by Jasper Rou, Costas Smaragdakis)

- **Jasper Rou** (*Delft U., NL*): “Deep Gradient Flow Methods for Option Pricing in Diffusion Models”
- **Ruben Wiedemann** (*Imperial College London, UK*): “Neural Operators for Implied Volatility Smoothing”
- **Urban Ulrych** (*EPFL, Swiss Finance Institute, Switzerland*): “Smart Kernel Factors”
- **Eva Lütkebohmert** (*U. Freiburg, Germany*): “Deep Learning Name Concentration Risk in Loan Portfolios of Multilateral Development Banks”

Room 4: Recent advances in MLMC methods for computational finance and Financial Risk management (by Chiheb Ben Hammouda)

- **Jonathan Spence** (*Edinburgh, UK*): “Hierarchical and adaptive methods for accurate and efficient risk estimation”.
- **Mouna Ben Derouich** (*Université Sorbonne, Paris, France*): “MLMC methods for pricing barrier options under the Heston model.”
- **Azar Louzi** (*LPSM, Université Paris Cité, France*): “Adaptive multilevel stochastic approximation of the Value-at-Risk and expected shortfall”
- **Tony Ware** (*Calgary, Canada, and Cardiff, UK*): “Weighted multilevel Monte Carlo”

11:40 – 13:00: Contributed talks 2 (3 presentations), 4 rooms

Room 1: Monte Carlo methods:

- **Michele Azzone** (*Milano, Italy*): “A fast Monte Carlo scheme for additive processes and option pricing”
- **Maria Kalicanin Dimitrov** (*Mälardalen U., Sweden*): “Almost-Exact Scheme for Heston-type Models: American and Bermudan Option Pricing”
- **Blessing Taruvinga** (*CSIRO, Australia*): “PDF Smoothing in Monte-Carlo Methods to Generate Stable Greeks for Financial Derivatives with Discontinuous Payoffs”

Room 2: Portfolios

- **Sami Alkhoury** (*Berlin, Germany*): “Valuing and Managing Real Estate Portfolios: GIS Data and Explainable Machine Learning Approaches”
- **Rodolphe Vanderveke** (*UCLouvain, Belgium*): “Optimal Diversification under Parameter Uncertainty”
- **Jari Toivanen** (*Jyväskylä, Finland*): “Monte Carlo based Portfolio Optimization”

Room 3: Insurance / Finance

- **Koos Gubbels** (*Achmea, Tilburg U, NL*): “Principal component copulas for capital modeling”
- **Naoyuki Ishimura** (*Chuo U., Tokyo, Japan*): “Insurance design against epidemic outbreaks involving Cramér-Lundberg model”
- **Pasquale Cirillo** (*ZHAW, Zürich, Switzerland*): “Probability pas de deux in finance: connecting two probability measures via non-Newtonian calculus”

Room 4: Optimal stopping

- **Burcu Aydogan** (*RWTH Aachen, Germany*): “Optimal execution under unknown price impact”

- **Joshua Dekker** (*U. Amsterdam, NL*): “Optimal Stopping with Randomly Arriving Opportunities to Stop”
- **Balint Negyesi** (*Delft U., NL*): “On coupled BSDEs”

13:00 – 14:00 Lunch

Afternoon:

14:00 – 15:15: Contributed talks session 3 (3 presentations), 4 rooms

Room 1: Hedging

- **Carlo Sgarra** (*Bari, Italy*): “Semi-static variance-optimal hedging with self-exciting jumps”
- **Purba Banerjee** (*IISc, Bangalore, India*): “Multi-period static hedging of European options”
- **Leonardo Perotti** (*Utrecht U., NL*): “Modelling and hedging the prepayment option for fixed interest rate mortgages”
- **Christian Kappen** (*d-fine, Frankfurt, Germany*): “The Power of Derivatives: Pricing and Hedging of Power Purchase Agreements and Power Options”

Room 2: Market features

- **Yerkin Kitapbayev** (*Abu Dhabi, UAE*): “Valuation of equity and debt with finite maturity using local time”
- **Giovanni Amici** (*Torino, Italy*): “Time-inhomogeneity in currency triangles”
- **Aditya Nittur Anantha** (*IISc Bangalore, India*): “Measuring and filtering noise in high frequency order flow”

Room 3: Selection, Identification

- **Arnaud Germain** (*UCLouvain, Belgium*): “Loan selection for collateralized debt obligations: minimizing the cost of capital release”
- **Nikeethan Selvaratnam** (*BNP Paribas, Polytechnique de Paris, France*): “Modeling dependency between operational risk losses and macroeconomic variables using hidden Markov triplets”
- **Dorinel Bastide** (*BNP Paribas and Ecole polytechnique, France*): “Takers identification for defaulted portfolios with simulated annealing algorithms”

Room 4: Climate, ESG

- **Jörg Müller** (*U. Chemnitz, Germany*): “Credit value-at-risk in the context of ESG”
- **Davide Trevisani** (*CITIC, A Coruña, Spain*): “Scope 3 capital design for carbon-emissions-facilitation tax risk”
- **Serine Guichoud** (*Ecole des Ponts, Université Paris-Saclay, France*): “Physical propagation of climate extremes across global value chains”

15:30 – Afternoon/Evening: Excursion plus conference dinner, on a boat through the Amsterdam canals, dinner in restaurant “Kop van Oost”

Friday April 5th

Morning:

9:00 – 10:40: Mini-symposia session 5 (4 presentations), 4 rooms

Room 1: Computational Finance IV, Energy Markets (by Matthias Ehrhardt)

- **Carlos Vazquez Cendon** (*A Coruña, Spain*): “Modelling and numerical methods for pricing in renewable energy certificates markets”
- **Joanna Janczura** (*Wroclaw, Poland*): “Product of VAR time series with an application to electricity load prediction errors”
- **Arkadiusz Lipiecki** (*Wroclaw, Poland*): “Probabilistic forecasting of electricity prices with isotonic regressions”
- **Tomasz Weron** (*Wroclaw, Poland*): “Bootstrap-based forecasts in battery charging strategies”

Room 2: Crypto-Finance (by Julien Prat)

- **Emmanuel Gobet** (*IP Paris, France*): “Robust aggregation of crypto data”
- **Evgeny Lyandres** (*Tel Aviv U., Israel*): “Does Market Efficiency Impact Capital Allocation Efficiency? The Case of Decentralized Exchanges”
- **Andrea Canidio** (*Cow Protocol*): “Combinatorial Auctions with Fairness Concerns: The Case of Blockchain Trade-Intent Auctions”
- **Julien Prat** (*IP Paris, France*): “Systemic Risk in Decentralized Lending Protocols”

Room 3: Stochastic Modeling and Complex System Methods in Finance (by Drona Kandhai, Sven Karbach, and Simon Trimborn, University of Amsterdam)

- **Drona Kandhai** (*U. Amsterdam and ING Bank, NL*): “Recent Advances in xVA Modeling”
- **Simon Trimborn** (*U. Amsterdam, NL*): “Influential Assets in Large-Scale Vector Auto-Regressive Models”
- **Sven Karbach** (*U. Amsterdam, NL*): “Dependency Modeling in Renewable Energy Markets”
- **Ioannis Anagnostou** (*European Investment Bank – EIB, Luxembourg*): “Network Modeling Methods for Portfolio Credit Risk”

Room 4: Interest rate models

- **J.G. López-Salas** (*A Coruña, Spain*): “PDEs for pricing interest rate derivatives under the new generalized Forward Market Model (FMM)”
- **Thomas van der Zwaard** (*Rabobank, Utrecht U., NL*): “Short-rate models with smile and applications to Valuation Adjustments”
- **Riccardo Brignone** (*U. Freiburg, Germany*): “Exact simulation of the Hull and White stochastic volatility model”
- **Guido Germano** (*UC London, UK*): “Matrix and vector Heston stochastic volatility models with stochastic interest rates”

10:45 – 11:15: Coffee break

11:15 – 12:30 : **Industrial panel:** New trends in academic finance, industrial finance,

climate finance, need for machine learning, comp. methods in industry

12:30 – 13:30: Lunch

Afternoon:

13:30–15:10: Mini-symposia session 6 (4 presentations), 3 rooms

Room 1: Computational Finance V (by Daniel Sevčovic, Matthias Ehrhardt)

- **Kristian Debrabant** (*Odense U., Denmark*): “Weak second-order stochastic Runge-Kutta methods with optimal stage number”
- **Peng Guo** (*Peking U., China*): “Optimal execution with relative entropy, a Schrödinger bridge approach”
- **Eike Brinkop** (*Reading, UK*): “Deep learning for pricing time contextual data”
- **Rayan Ayari** (*Zeppelin U., Germany*): “Beyond the efficient frontier and 1/N: How to beat the market with deep reinforcement”

Room 2: Investment, strategies

- **David Itkin** (*Imperial College London, UK*): “Are linear strategies nearly optimal when trading with superlinear frictions?”
- **Afrasiab Kadhum** (*Ortec F., Rotterdam, NL*): “Creating model-agnostic prediction intervals”
- **Imtiaz Sifat** (*Nijmegen U., NL*): “Blockchain in the Industry 4.0 Era, sociotechnical dynamics and integration frameworks”
- **Cláudia Nunes** (*Univ. Lisboa and CEMAT, Portugal*): “Innovation and product positioning in a monopoly”

Room 3: Stochastic volatility models

- **Luca Gonzato** (*Vienna, Austria*): “Bayesian calibration of option pricing models using sequential Monte Carlo samplers”
- **Simona Sanfelici** (*Parma, Italy*): “Identifying the number of latent factors of stochastic volatility models”
- **João Guerra** (*ISEG-Lisbon and U. de Lisboa, Portugal*): “Stochastic Volterra rough volatility models and Markovian approximations”
- **Léo Parent** (*PRISM Sorbonne, France*): “Rough path-dependent volatility models”

15:15: Closing of ICCF24