Christa Cuchiero

born in Austria on April 13, 1983
Nationality: Austrian

University of Vienna
Department of Statistics and
Operations Research
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Education

March 2018 — **Habilitation (venia docendi) in Mathematics**, *University of Vienna*.

July 2007–April 2011 — **Ph.D. in Mathematics**, *ETH Zürich*, Supervisor: Prof. Josef Teichmann, Co-supervisor: Prof. Damir Filipović.
awarded with the ETH medal

Oct. 2001–Oct. 2006 — **M.Sc. in Technical Mathematics**, *Vienna University of Technology*.
Major: Applied Mathematics in Economics, diploma with highest distinction

Sept. 2004–May 2005 — **Applied Mathematics**, *Ecole Centrale Paris*.
Emphasis on Probability and Mathematical Finance

June 2001 — **Matura**, *Akademisches Gymnasium Linz*.
obtained with highest distinction

Employment and Academic Positions

May 2020–present — **Professor**, *Vienna University*, Department of Statistics and Operations Research.

Jan. 2020– April 2020 — **Professor**, *Université de Paris (Diderot)*, Laboratoire de Probabilités, Statistique et Modélisation.

March 2019–Dec. 2019 — **Assistant professor (tenure track)**, *Vienna University of Economics and Business*, Institute of Statistics and Mathematics.

Okt. 2014–Feb.2019 — **Assistant professor**, *University of Vienna*, Faculty of Mathematics.

Okt. 2016–Feb. 2017 — **Research visit**, *ETH Zürich*, Department of Mathematics, invited by the FIM (Forschungsinstitut für Mathematik).

April 2013–Sept. 2014 — **Assistant professor**, *Vienna University of Technology*, Financial and Actuarial Mathematics.

Jan. 2012–March 2013 — **Postdoc position**, *University of Vienna*, Faculty of Mathematics.

May 2011–Dec. 2011 — **Postdoc position**, *ETH Zürich*, Department of Mathematics.

July 2009–April 2011 — **Ph.D. position**, *ETH Zürich*, Department of Mathematics.

July 2007–June 2009 — **Ph.D. position**, *Vienna University of Technology*, Financial and Actuarial Mathematics, START-prize project "Geometry of Stochastic Differential Equations".

Sept. 2006–June 2007 — **Risk Analyst**, *AGF France (Allianz Group), Paris*, Risk Management.

Aug. 2005–Aug. 2006 — **Internship at Allianz Elementar**, *ALM & Risk Controlling*, Vienna.

Current Research Interests

Stochastic Analysis, Probability Theory & Statistics	stochastic processes, in particular affine and polynomial processes on different state spaces in finite and infinite dimensions, Volterra processes, measure valued processes, McKean-Vlasov SDEs, interacting particle systems, mean field control and games, stochastic representations and numerics of (nonlinear) PDEs, semimartingale theory, functional analytic methods, statistics of stochastic processes, statistics with high-frequency data, covariance estimation, robust model calibration.
Mathematical Finance and Quantitative Risk Management	multivariate stochastic and rough volatility modeling, machine learning in finance, stochastic portfolio theory, modelfree portfolio optimization, systemic risk, large financial markets, arbitrage theory, interest rate theory, energy modeling
Artificial Intelligence, Machine Learning and Data Science	signature methods, universal approximations theorems in static and dynamic situations, data driven risk inference, deep neural networks, reservoir computing
Applications in Biology and Physics	population genetics, probabilistic formulations of Stefan type problems

Awards and Prizes

2024	**Fellow at the Center for Advanced Study (CAS)** at the Norwegian Academy of Science and letters for the project "Signatures for images"
2019	**START Prize**
2018	**Bruti-Liberati Visiting Fellowship in Sydney 2018**
2017	**Prix de l'Institut Europlace de Finance (EIF):** Best paper award in finance for the article "A General HJM Framework for Multiple Yield Curve Modeling" jointly written with Claudio Fontana and Alessandro Gnoatto
2012	**Ph.D. thesis awarded with the ETH medal** (granted to the best 8% of Ph.D. theses completed at ETH each year)
2002–2004	**Scholarships for outstanding studies** awarded by the TU Vienna

Successful application for third party funded research projects

2021	**OeAD - Project: "Polynomial Volterra processes and their applications in finance"** (travel funds to cooperate with Eduardo Abi-Jaber, Sergio Pulido and Sara-Svaluto-Ferro), 6000 EUR
2019	**START - Prize: "Universal structures in Mathematical Finance",** 72 months, 1 200 000 EUR
2018	**DFG - FWF - Project: "Dynamic uncertainty modeling",** PI in Vienna (jointly with Thorsten Schmidt and Irene Klein), 36 months, 324 000 EUR
2016	**WWTF - Project: "Macroprudential bank regulation: a continuous time approach"**, joint application with Walter Schachermayer and Jean-Charles Rochet, July 2017 - Dec. 2021, 600 000 EUR

Co-Organization of Conferences and Workshops

July 2025	Vienna Congress on Mathematical Finance, Vienna, Austria
April 2025	Workshop on "Neural dynamical systems for time-series data", Vienna, Austria

November 2024	Oberwolfach Workshop: Directions in Rough Analysis, Oberwolfach, Germany
December 2023	Phd Course Quantum Computing in Finance, Vienna, Austria
September 2023	Wolfgang Pauli Workshop: Stochastics, Statistics and Machine Learning and their Applications to Sustainable Finance and Energy Markets, Vienna, Austria
June 2023	Workshop at IMSI: Laplacian growth models: theory and applications, Chicago, US
Apri 2023 - present	Online seminar series: Women in Data Science and Mathematics
June 2022	Advances in Mathematical Finance and Optimal Transport, Pisa, Italy
December 2021	Organisation of an invited session at the 15th International Conference on Computational and Financial Econometrics (CFE 2021), London, UK
March 2021 - present	World Online Seminars on Machine Learning in Finance
December 2020	Workshop on Representations of Jump Diffusions, Berlin-Vienna (online)
October 2020 - present	Vienna Seminar in Mathematical Finance and Probability, Vienna, Austria
September 2020	High dimensional Stochastics, Vienna, Austria
September 2020	13th European Summer School in Financial Mathematics, Vienna, Austria
June 2019	Mini-symposium "Universal structures in Mathematical Finance", ICASQF Conference, Manizales, Colombia
June 2019	Member of the Scientific Committee for the AMaMeF Conference 2019
Jan. 2019	Quantitative Finance Workshop 2019, Zurich, Switzerland
July 2018	Workshop "Dynamic uncertainty modeling", Strobl, Austria
Sept. 2017	Mini-symposium "Affine and polynomial processes in Finance", ICCF2017 Conference, Lisbon, Portugal
Sept. 2016	Conference "Vienna Congress of Mathematical Finance", Vienna, Austria
April 2016	Workshop "Pathwise methods, functional calculus and applications in Mathematical Finance", Vienna, Austria
2015-present	Several editions of the "Freiburg-Padova-Vienna-Zurich-Seminar", Research meeting between the Mathematical Finance groups of Freiburg, Padova, Vienna and Zurich
Sept. 2015	Workshop "Mathematical Finance beyond classical models", Zurich, Switzerland
Aug. 2015	Mini-symposium "Modeling in Finance beyond classical paradigms" , ICIAM Conference, Bejing, China
Sept. 2014	2nd European Actuarial Journal (EAJ) Conference, Vienna, Austria
Aug. 2013	6th European Summer School in Financial Mathematics, Vienna, Austria
July 2012	Organization of the Mini-symposium "Matrix valued processes and multivariate stochastic volatility modeling", SIAM Conference, Minneapolis, USA

Editorial activities and referee activity

January 2022 -	Guest Editor for the Special Issue "Machine Learning in Finance" of Mathematical Finance
January 2022 -	Associate Editor for the SIAM Journal on Financial Mathematics

September 2021 -	Associate Editor for Frontiers of Mathematical Finance
January 2021 -	Associate Editor for Stochastics
January 2020 -	Associate Editor for Mathematical Finance
July 2018 -	Associate Editor for the Journal of Computational Finance
Jan. 2017 -	Associate Editor for Finance and Stochastics
Referee activity	Annals of Applied Probability, Electronic Journal of Probability, Finance and Stochastics, Mathematical Finance, Probability Theory and Related Fields, SIAM Journal on Financial Mathematics, Sigma, Statistics and Probability Letters, Stochastic Processes and their Applications, etc.
Scientific committees	Senior Programm Committee for ACM International Conference on AI in Finance, Member of the Scientific Committee of CFE 2021

University service and services for the community

since Oct. 2024	Vice dean of teaching at the faculty of Business, Economics and Statistics
since June 2024	Board member of AMaMeF (Advanced Mathematical Methods for Finance)
since Jan. 2024	Vice Chair of the SIAM activity group on Financial Mathematics and Engineering
since Jan. 2023	Council member of the Bachelier Finance Society
Oct. 2022- Sep. 2024	Vice director of the PhD study programm in Business, Economics and Statistics
since Oct. 2022	Executive board member of the research network Data Science @ Uni Vienna
External member of hiring committees	Maître de conférence in Mathematical Finance at (i) University of Évry Val d'Essonne and at (ii) ENSIIE, 2020; Full professor in Probability and Statistics at the Institut Élie Cartan of the University of Lorraine in Nancy, 2022
Internal member of hiring committees	Tenure track positions in Foundations of Machine Learning in Finance, Stochastic Methods for Data Science and in Governance, Organizational Design and Digitalization (2020), Full professorship in Optimization (2022)

Referee positions and grant review panels

Grant reviewer	National Science Centre, Poland (NCN)
	Dutch Research Council (NWO)
Reviewer	for habilitation committees, tenure committees and hiring committees
Jury member	Bruti Liberati prize for best thesis
Jury member	(External) jury member in several thesis and habilitation committees

Memberships

Member of the Young Academy, Austria

Bachelier Finance Society

SIAM

Louis Bachelier Fellow

Wolfgang Pauli Institute, Vienna

Third mission, public outreach, cooperations with the industry

Promotion of women	LEA (Let's empower Austria) rolemodel and contribution in a children's book
Industry cooperation	Advisory board of digna.ai
Talks	Talks at TUForMath, Porsche Informatik 2024, the ADV Data Excellence Conference 2024, ADV Trends 2023, TDWI Roundtable

Talks

more than 250

Invited Talks (January 2022 - November 2024, key note speaker is highlighted with (*))

"Signature methods in finance"
• Bloomberg Quant (BBQ) Seminar, New York, November 2024 (*)
• 12th Bachelier World Congress, Keynote, Rio de Janeiro, July 2024 (*)

"Frauen Macht MI(N)T!"
• Talk at Porsche, Salzburg, November 2024 (*)

"(Neural)-signature methods, applications in finance and some research questions
• Seminar at ISTA, Maria Gugging, November 2024

"(Conditional) polynomial McKean-Vlasov SDEs"
• Stochastics in Mathematical Finance and Physics Hammamet, October 2024
• Statistical and Probabilistic Analysis of Random Networks and Processes, Nice, September 2024

"Signatures methods in finance"
• PhD course, Verona, July 2024
• PhD course, Paris, March 2024
• PhD course, Soesterberg, January 2024
• PhD course, Oslo, March 2023
• PhD course, Padova, September 2022

"Functional Itô formula and Taylor expansions for non-anticipative maps of rough paths"
• Signatures of paths and images, Oslo, June 2024
• Math Stats Seminar - KTH Stockholm, Stockholm, June 2024
• Stochastic Finance Seminar - University of Warwick, Warwick, May 2024
• Financial Math Seminar - Princeton University, Princeton, May 2024
• IRTG Seminar - Berlin Probability Colloquium, Berlin, April 2024
• Séminaire en Mathématiques financières et actuarielles, probabilités numériques, Paris, March 2024
• Mathematics, Data Science, and Education Workshop at the FernUniversität Hagen, Hagen, March 2024
• Recent Developments in Rough Paths, BI Oslo, Oslo, March 2024

"Deep Learning of data driven Heath-Jarrow-Morton models"
• 4th Italian Meeting on Probability and Mathematical Statistics, June 2024

"Global universal approximation of functional input maps on weighted spaces"
• Recent Developements in Mathematics of Machine Learning, Bergische Universität Wuppertal, Wuppertal, March 2024
• Joint Fudan-Vienna Workshop on Applied Mathematics and Data Science, Shanghai, February 2024
• Lie Stormer Colloquium, Oslo, November 2023
• International Conference on Stochastics in Mathematical Finance and Physics, Hammamet, October 2023
• Seminar UC Berkeley, Berkeley, September 2023
• Second Workshop on "Machine learning for PDEs", London, April 2023
• Stochastic Analysis and Mathematical Finance Seminar, Oxford, November 2022

"Signature methods in stochastic portfolio theory"
• Seminar at Simula@BI, Oslo, March 2024
• Conference on Mathematics in Finance Kruger Park, July 2023 (*)
• Stochastic Modeling and Control, Bedlewo, May 2023
• IFAM seminar, Liverpool (online), October 2022
• Stochastic Control and Quantitative Finance, Jerusalem, September 2022
• 10th Austrian stochastic days, Vienna, September 2022 (*)
• BIRS Workshop: New interfaces of Stochastic Analysis and Rough Paths (online), September 2022
• Financial Mathematics Session at the AMS-EMS-SMF International Meeting, Grenoble, July 2022
• Mini symposium LMU München, June 2022

Polynomial interacting particle systems and non-linear SPDEs for capital distribution curves
• Probability/Math Finance Seminar - Carnegie Mellon University, Pittsburgh, April 2024
• Bachelier Colloquium, Metabief, January 2024
• Research in Options, Rio de Janeiro, December 2023 (*)
• Workshop at Oberwolfach, October 2023

Infinite dimensional Wishart processes
• XXV Workshop on Quantitative Finance, Bologna, April 2024
• Stochastics around Finance, Kanazawa, August 2023

"It is all about Data Quality"
• ADV Data Excellence Conference, Vienna, April 2024

"From Lévy's stochastic area formula to universality of affine and polynomial processes"
• DataSig Seminar Series (online), February 2024
• MathRisk Conference on Numerical Methods in Finance, Udine, June 2023 (*)
• Kick-off meeting for "Signatures for Images", Oslo, May 2023
• International Seminar on SDEs and Related Topics (online), March 2023

"(Future) AI Breakthroughs"
• ADV Trends 2023: Gamechanger IT – Innovate4Resilience, Vienna, November 2023

"Joint calibration of SPX and VIX options with signature-based models"
• ICIAM, Tokyo, Japan, August 2023
• SIAM Conference on Financial Mathematics and Engineering, Philidelphia, June 2023
• XXIV Workshop on Quantitative Finance, Gaeta, April 2023
• Seminar Fields Institute, Toronto, February 2023
• 15th Bachelier Colloquium, Metabief, January 2023
• Seminar at Imperial College, London, January 2023

"Machine Learning in Quantitative Finance
• TDWI Roundtable, Vienna, March 2023

" Measure-valued processes for energy markets"
• Recent developments in stochastics with applications in mathematical physics and finance, Hammamet, October 2022 (*)
• FIMA 2022: On the Interplay between Finance and Insurance Mathematics, Lisbon, May 2022
• XXIII Quantitative Finance Workshop, Rome, April 2022
• BIRS Workshop: Stochastic Mass Transports (online), March 2022

"Universal approximation theorems for continuous functions of càdlàg paths and Lévy-type signature models"
• Third Symposium on Machine Learning and Dynamical Systems, Toronto, Fields Institute, September 2022
• Stochastic & Rough Analysis Berlin, August 2022

"Signature based models in finance: relation to affine and polynomial processes, calibration and inclusion of jumps"
• 25th International Symposium on Mathematical Theory of Networks and Systems, Bayreuth, September 2022

"Universal portfolios and model-free portfolio optimization"
• Algorithmic Trading Group Seminar, May 2022

"Optimal bailout strategies and the drift-controlled supercooled Stefan problem"
• IMSI Workshop on Machine Learning and Mean-Field Games Chicago (online), May 2022
• Quantact Seminar (online), Montréal, May 2022
• Spring Colloquium on Probability and Finance dedicated to Wolfgang Runggaldier on the occasion of his 80th birthday, Padova, April 2022
• Columbia Mathematical Finance Seminar, New York (online), April 2022
• Manchester Probability Seminar, Manchester (online), March 2022
• 13th International Workshop on Stochastic Models and Control, Travemünde, March 2022

" Randomized signature for approximation of dynamic processes"
• DNA Seminar - Norwegian University of Science and Technology (online), March 2022

"Rough covariance modeling - theory and empirics"
• Cournot seminar: " From Microscopic Models to Rough Macroscopic Models" February 2022

"Signature SDEs as affine and polynomial processes"
• Winter Seminar on Mathematical Finance, Netherlands (online), January 2022

Programing skills

Matlab, Python, R

Languages

German (native), English (fluent), French (fluent)

Teaching experience

Fall 2024 **Concepts of deep learning, reinforcement learning and generative AI with applications in Finance**, *ETH Zurich*.

Fall 2024 **Advanced stochastic modeling**, *University of Vienna*.

Fall 2024 **Linear Algebra**, *University of Vienna*.

Fall 2024 **Financial Mathematics and Insurance Mathematics**, *University of Vienna*.

Spring 2024 **Advanced stochastic modeling**, *University of Vienna*.

Fall 2023 **Reinforcement Learning: Insights and Applications**, *ETH Zurich*.

Fall 2023 **Advanced stochastic modeling**, *University of Vienna*.

Fall 2023 **Linear Algebra**, *University of Vienna*.

Fall 2023 **Financial Mathematics and Insurance Mathematics**, *University of Vienna*.

Spring 2023 **Advanced stochastic modeling**, *University of Vienna*.

Spring 2023 **Seminar in Statistics for Master Studies (Machine Learning in Finance)**, *University of Vienna*.

Spring 2023 **Mathematical Optimization**, *University of Vienna*.

Fall 2022 **Advanced stochastic modeling**, *University of Vienna*.

Fall 2022 **Linear Algebra**, *University of Vienna*.

Fall 2022 **Financial Mathematics and Insurance Mathematics**, *University of Vienna*.

Spring 2022 **Advanced stochastic modeling**, *University of Vienna*.

Spring 2022 **Seminar in Statistics for Master Studies (Machine Learning in Finance)**, *University of Vienna*.

Spring 2022 **Mathematical Optimization**, *University of Vienna*.

Fall 2021 **Advanced stochastic modeling**, *University of Vienna*.

Fall 2021 **Linear Algebra**, *University of Vienna*.

Fall 2021 **Introduction to Mathematical Finance**, *University of Vienna*.

Spring 2021 **Advanced stochastic modeling**, *University of Vienna*.

Spring 2021 **Seminar in Statistics for Master Studies (Machine Learning in Finance)**, *University of Vienna*.

Spring 2021 **Mathematical Optimization**, *University of Vienna*.

Fall 2020 **Advanced stochastic modeling**, *University of Vienna*.

Fall 2020 **Linear Algebra**, *University of Vienna*.

Fall 2020 **Introduction to Mathematical Finance**, *University of Vienna*.

Spring 2020 **Mathematical Optimization**, *University of Vienna*.

Spring 2020 **Mathematical Finance I**, *Université de Paris*.

Spring 2020 **Lecture for Machine Learning in Finance**, *Université de Paris*.

Fall 2019 **Lecture and Exercises for Machine Learning in Finance (Master/PhD)**, *Vienna University of Economics and Business*.

Spring 2019 **Lecture on Continuous Time Finance I**, *Vienna University of Economics and Business.*

Fall 2018 **Lecture and Exercises on Mathematical Finance in discrete time**, *University of Vienna.*

Spring 2018 **Proseminar on Mathematical Finance in Continuous Time**, *University of Vienna.*

Fall 2017 **Lecture on Stochastic Analysis**, *University of Vienna.*

Fall 2017 **Exercises on Mathematical Finance in Discrete Time**, *University of Vienna.*

Spring 2017 **Proseminar on Mathematical Finance in Continuous Time**, *University of Vienna.*

Spring 2017 **Exercises on Probability Theory and Statistics**, *University of Vienna.*

Spring 2016 **Lecture and Exercises on Mathematical Finance in Continuous Time**, *University of Vienna.*

Fall 2015 **Lecture and Exercises on Mathematical Finance in Discrete Time**, *University of Vienna.*

Spring 2015 **Exercises on Mathematical Finance in Continuous Time** , *University of Vienna.*

Fall 2014 **Exercises on Mathematical Finance in Discrete Time**, *University of Vienna.*

Spring 2014 **Lecture on Mathematical Finance (discrete time)**, *Vienna University of Technology*.

Fall 2013 **Lecture on Interest Rate Theory**, *Vienna University of Technology*.

Fall 2013 **Exercises on Life Insurance Mathematics**, *Vienna University of Technology*.

Spring 2013 **Exercises on Mathematical Finance: Continuous Time Models** , *Vienna University of Technology*.

Spring 2013 **Exercises on Mathematical Finance in Continuous Time**, *University of Vienna.*

Fall 2012 **Exercises on Mathematical Finance in Discrete Time**, *University of Vienna.*

Spring 2011 **Exercises on Brownian Motion and Stochastic Calculus**, *ETH Zürich.*

Fall 2010 **Exercises on Probability Theory**, *ETH Zürich.*

Spring 2010 **Exercises on Probability Theory and Statistics**, *ETH Zürich.*

Fall 2009 **Exercises on Mathematical Finance**, *ETH Zürich.*

Current Ph.D Supervision

Tomas Carrando — Ph.D student since October 2024

Eva Flonner — Ph.D student since October 2020, co-supervision with Zehra Eksi at WU Vienna

Julian Pachschwoell — Ph.D student since October 2024

Completed Ph.D (7) and Post Doc Supervision (2)

Janka Möller	Ph.D student, Thesis title: "Signature methods and polynomial McKean-Vlasov equations for financial modeling", Defense November 2024
Benedict Bauer	Ph.D student, Thesis title: "Aspects of volatility modeling: from Gaussian processes to martingale couplings with prescribed support", Defense September 2024, co-supervision with Stefan Gerhold at TU Vienna
Francesca Primavera	Ph.D student, Thesis title: 'Signature of càdlàg rough paths: universal properties and applications in finance", Defense September 2024, co-supervision with Sara Svaluto-Ferro at the University of Verona
Florian Huber	Post Doc from April 2021 to November 2023, now Post Doc at EPFL
Guido Gazzani	Ph.D student, Thesis title: "Signature-based models in finance and robust risk measures", Defense March 2023, co-supervision with Irene Klein at the University of Vienna
Stefan Rigger	Ph.D student, Thesis title: "Probabilistic solutions of the supercooled Stefan problem", Defense July 2022
Franceso Guida	Ph.D student, Thesis title: "Measure-valued affine and polynomial diffusions and applications to energy modeling", Defense March 2022, co-supervision with Luca di Persio at the University of Verona
Tonio Möllmann	Ph.D student, Thesis title: "Generalized Feller processes and their applications to affine and polynomial processes", Defense January 2022, co-supervision with Josef Teichmann at the Scuola Normale Superiore in Pisa
Sara Svaluto-Ferro	Post Doc from March 2018 to October 2021, now Assistant Professor at the University of Verona

Master and Bachelor thesis (Co)-Supervision

Valentin Schmidts	*Signature methods for path-dependent volatility modeling*, Master thesis, University of Vienna, 2024
Tomas Carrando	*Universality of Signatures in Rough Path Spaces*, Master thesis, University of Delft, 2024
Fation Abdiu	*The effect of inclusion and exclusion in and from the German midcap index (MDAX) on stock's returns*, Master thesis, University of Vienna, 2022
Hanae Miura	*Deep Hedging in Python*, Bachelor thesis, University of Vienna, 2022
Chi Yung Li	*The martingale method in trinomial market models*, Bachelor thesis, University of Vienna, 2022
Julia Glitzner	*Derivative pricing in incomplete markets*, Bachelor thesis, University of Vienna, 2021
Agnes Leonardsberger	*Donsker's approximation theorem*, Bachelor thesis, University of Vienna, 2022
Raphael Fabsits	*Pricing American options in incomplete markets*, Bachelor thesis, University of Vienna, 2021
Jakob Steininger	*Deep reinforcement learning for portfolio optimization*, Master thesis, WU Vienna, 2020

Eva Flonner	*Rough covariance estimation - a neural network approach*, Master thesis, WU Vienna, 2020
Andreas Celary	*Rough volatility in Bitcoin markets*, Master thesis, University of Vienna 2019
Anela Jahic	*Volatility forecasting with neural networks*, Master thesis, University of Vienna 2019
Sabrina Kellner	*Machine Learning in Market Risk Management*, MBA thesis, Vienna University of Economics and Business, 2019
Lukas Anzeletti	*Ray-Knight Theorems*, Bachelor thesis, University of Vienna 2018
Michele Giordano	*Affine Volterra processes with jumps*, Master thesis, University of Pisa 2018
Dorothea Zvonarich	*American options*, Bachelor thesis, University of Vienna 2018
Jasmin Riegler	*Swaption Pricing with a Linear-Rational Term Structure Model*, Master thesis, University of Vienna 2017
Mark Ballandies and Simon Hurwitz	*Rough fractional stochastic volatility models*, Master thesis, ETH Zürich 2017
Tobias Klocker	*Online Portfolio selection*, Bachelor thesis, University of Vienna 2017
Sarina Kohlfürst	*Riskiomanagement and Value at Risk*, Bachelor thesis, University of Vienna 2017
Tobias Salzer	*Topics in Ruin Theory*, Bachelor thesis, University of Vienna, 2017
Matthäus Geiger	*The Arbitrage Pricing Model*, Master thesis, University of Vienna and ETH Zürich, 2016
Lisa Neitzel	*Optionen und Martingale und deren Integration in einem anwendungsbezogenen Mathematikunterricht*, Master Thesis, University of Vienna, 2014
Laura-Maria Orth	*The multidimensional Heston stochastic volatility model*, Master thesis , Vienna University of Technology, 2014
Sabine Polzer	*Modellierung von Elektrizitäts-Forwardpreisen*, Master thesis, Vienna University of Technology, 2014
Ev Bretschneider	*Das Binomialmodell zur Bewertung von Optionen*, Bachelor thesis, University of Vienna, 2012
Judith Mühlböck	*Das Black-Scholes-Modell, implizite Volatilität und die Monte Carlo Methode*, Bachelor thesis , University of Vienna, 2012
Alessandro Gnoatto	*Yield curve shapes for affine processes on positive definite matrices*, Master thesis, ETH Zürich, 2011

Mentoring activity

July 2023	Financial Mathematics Team Challenge, Project with 4 students on "Bayesian model averaging with signature methods", University of Cape Town
July 2017	Financial Mathematics Team Challenge, Project with 4 students on "Calibration with neural networks", University of Cape Town
July 2016	Financial Mathematics Team Challenge, Project with 4 students on "Calibration of polynomial market weights models", University of Cape Town

Publications (peer-reviewed)

(34) E. Abi Jaber, C. Cuchiero, L. Pelizzari, S. Pulido and S. Svaluto-Ferro, *Polynomial Volterra processes*, Electronic Journal of Probability, 2024, https://arxiv.org/abs/2403.14251

(33) C. Cuchiero, G. Gazzani, J. Möller, S. Svaluto-Ferro, *Joint calibration of SPX and VIX options with signature-based models*, Mathematical Finance 2024, https://arxiv.org/abs/2301.13235

(32) S. Cox, C. Cuchiero and A. Khedher, *Infinite-dimensional Wishart processes*, Electronic Journal of Probability (29), 2024, https://arxiv.org/abs/2304.03490

(31) C. Cuchiero, L. Di Persio, F. Guida and S. Svaluto-Ferro, *Measure-valued processes for enery markets*, Mathematical Finance, 2024, https://arxiv.org/abs/2210.09331

(30) C. Cuchiero, F. Primavera and S. Svaluto-Ferro, *Universal approximation theorems for continuous functions of càdlàg paths and Lévy-type signature models*, Finance and Stochastics, 2024, https://arxiv.org/abs/2208.02293

(29) C. Cuchiero, L. Di Persio, F. Guida, and S. Svaluto-Ferro, *Measure-valued affine and polynomial diffusions*, Stochastic Processes and their Applications, 2024, https://arxiv.org/abs/2112.15129

(28) C. Cuchiero, G. Gazzani, I. Klein, *Risk measures under model uncertainty: a Bayesian viewpoint*, Frontiers of Mathematical Finance 2(4), 2023, https://arxiv.org/abs/2204.07115

(27) C. Cuchiero, C. Reisinger, S. Rigger, *Implicit and fully discrete approximation of the supercooled Stefan problem in the presence of blow-ups*, forthcoming in SIAM Journal on Numerical Analysis, 2023, https://arxiv.org/abs/2206.14641

(26) C. Cuchiero, G. Gazzani and S. Svaluto-Ferro, *Signature based models: theory and calibration*, SIAM Journal on Financial Mathematics 14(3), 2023, https://arxiv.org/abs/2207.13136

(25) C. Cuchiero, C. Reisinger, and S. Rigger, *Optimal bailout strategies resulting from the drift controlled supercooled Stefan problem*, Annals of Operations Research, 2023, https://arxiv.org/abs/2111.01783

(24) A. Allan, C. Cuchiero, C. Liu and D. Prömel, *Model-free portfolio theory: A rough path approach*, Mathematical Finance, 2023, https://arxiv.org/abs/2109.01843

(23) C. Cuchiero, S. Rigger, S. Svaluto-Ferro, *Propagation of minimality in the supercooled Stefan problem*, The Annals of Applied Probability, 2022, https://arxiv.org/abs/2010.03580

(22) E. Abi Jaber, C. Cuchiero, M. Larsson and S. Pulido, *A weak solution theory for stochastic Volterra equations of convolution type*, The Annals of Applied Probability, 3(6):2924–2952, 2021, https://arxiv.org/abs/1909.01166

(21) C. Cuchiero and S. Svaluto-Ferro, *Infinite dimensional polynomial processes*, Finance and Stochastics 25(9):1-44, 2021, https://arxiv.org/abs/1911.02614

(20) C. Cuchiero, L. Gonon, L. Grigoryeva, J.-P. Ortega and J. Teichmann, *Discrete-Time Signatures and Randomness in Reservoir Computing*, IEEE Transactions on Neural Networks and Learning Systems, 2021, https://arxiv.org/abs/2010.14615

(19) C. Cuchiero, W. Khosrawi and J. Teichmann, *A generative adversarial network approach to calibration of local stochastic volatility models*, Risk 2020, https://arxiv.org/abs/2005.02505

(18) C. Cuchiero, M. Larsson and J. Teichmann, *Deep neural networks, generic universal interpolation, and controlled ODEs*, SIAM Journal on Mathematics of Data Science, 2(3):901–919, 2020, https://arxiv.org/abs/1908.07838

(17) C. Cuchiero and J. Teichmann, *Generalized Feller processes and Markovian lifts of stochastic Volterra processes: the affine case*, Journal of Evolution Equations, 1–48, 2020, https://doi.org/10.1007/s00028-020-00557-2, https://arxiv.org/abs/1804.10450

(16) C. Cuchiero and J. Teichmann, *Markovian lifts of positive semidefinite affine Volterra type processes*, Decisions in Economics and Finance, 42(2):407–448, 2019, https://arxiv.org/abs/1907.01917

(15) C. Cuchiero, M. Larsson and S. Svaluto-Ferro, *Probability measure-valued polynomial diffusions*, Electronic Journal of Probability, 24, 2019, https://arxiv.org/abs/1807.03229

(14) C. Cuchiero, I. Klein, J. Josef Teichmann, *A fundamental theorem of asset pricing for continuous time large financial markets in a two filtration setting*, to appear in Theory of Probability and its applications, 2019, https://arxiv.org/abs/1705.02087

(13) C. Cuchiero, *Polynomial processes in stochastic portfolio theory*, Stochastic processes and their applications, 129(5):1829-1872, 2019, https://arxiv.org/abs/1705.03647

(12) C. Cuchiero, M. Larsson and S. Svaluto-Ferro, *Polynomial jump-diffusions on the unit simplex*, Annals of Applied Probability, 28(4):2451-2500, 2018, http://arxiv.org/abs/1612.04266v1

(11) C. Cuchiero, W. Schachermayer and L. Wong, *Cover's universal portfolio, stochastic portfolio theory and the numéraire portfolio*, Mathematical Finance, 29(3):773–803, 2019, http://arxiv.org/abs/1611.09631v1

(10) C. Cuchiero, C. Fontana and A. Gnoatto, *Affine multiple yield curve models*, Mathematical Finance, 29(2):568-611, 2019, http://arxiv.org/pdf/1603.00527v1.pdf

(9) C. Cuchiero, I. Klein and J. Teichmann, *A new perspective on the fundamental theorem of asset pricing for large financial markets*, Theory of Probability and its Applications, 60(4):561-579, 2016, http://arxiv.org/pdf/1412.7562v1.pdf

(8) C. Cuchiero, C. Fontana and A. Gnoatto, *A general HJM framework for multiple yield curve modeling*, Finance and Stochastics, 20(2):267–320, 2016, http://arxiv.org/pdf/1406.4301.pdf

(7) C. Cuchiero and J. Teichmann, *A convergence result for the Emery topology and a variant of the proof of the fundamental theorem of asset pricing*, Finance and Stochastics, 19(4): 743-761, 2015, http://arxiv.org/pdf/1406.5414.pdf

(6) C. Cuchiero and J. Teichmann, *Fourier transform methods for pathwise covariance estimation in the presence of jumps*, Stochastic processes and their applications, 125(1):116-160, 2015, http://arxiv.org/pdf/1301.3602.pdf

(5) C. Cuchiero, M. Keller-Ressel, E. Mayerhofer and J. Teichmann, *Affine processes on symmetric cones*, Journal of Theoretical Probability, 2014, http://arxiv.org/pdf/1112.1233v1.pdf

(4) C. Cuchiero and J. Teichmann, *Path properties and regularity of affine processes on general state spaces*, Séminaire de Probabilités XLV, 2013, http://arxiv.org/pdf/1107.1607v2.pdf

(3) C. Cuchiero, M. Keller-Ressel and J. Teichmann, *Polynomial processes and their applications to mathematical finance*, Finance and Stochastics, 16(4):711-740, 2012, http://arxiv.org/pdf/0812.4740v2.pdf

(2) C. Cuchiero, D. Filipović, E. Mayerhofer and J. Teichmann, *Affine processes on positive semidefinite matrices*, Annals of Applied Probability, 21(2):397-463, 2011, http://arxiv.org/pdf/0910.0137v3.pdf

(1) C. Cuchiero, D. Filipović and J. Teichmann, *Affine Models*, Encyclopedia of Quantitative Finance, 2010, http://arxiv.org/pdf/0809.1985v2.pdf

Other publications

(35) C. Cuchiero, *Universal structures in Mathematical Finance*, Internationale Mathematische Nachrichten, 08/2020

Preprints

(42) C. Cuchiero, F. Primavera and S.Svaluto-Ferro, *Holomorphic jump-diffusions*, 2024, https://arxiv.org/abs/2411.04238

(41) C. Cuchiero, E. Flonner and K. Kurt, *Robust financial calibration: a Bayesian approach for neural SDEs*, 2024, https://arxiv.org/abs/2409.06551

(40) C. Cuchiero and F. Huber, *Polynomial interacting particle systems and non-linear SPDEs for market capitalization curves*, 2024, https://arxiv.org/abs/2404.10744

(39) C. Cuchiero and J. Möller, *Signature Methods in Stochastic Portfolio Theory*, 2023, https://arxiv.org/abs/2310.02322

(38) C. Cuchiero, T. Möllmann and J. Teichmann, *Ramifications of generalized Feller theory*, 2023, https://arxiv.org/abs/2308.03858

(37) C. Cuchiero, P. Schmocker and J. Teichmann, *Global universal approximation of functional input maps on weighted spaces*, 2023, https://arxiv.org/abs/2306.03303

(36) C. Cuchiero, S. Svaluto-Ferro and J. Teichmann, *Signature SDEs from an affine and polynomial perspective*, 2023, https://arxiv.org/abs/2302.01362

Habilitation and Ph.D.

Habilitation Thesis — High dimensional finance beyond classical paradigms - multiple yield curves, robust calibration and model-free portfolio selection

Ph.D. Thesis — Affine and polynomial processes
http://e-collection.library.ethz.ch/eserv/eth:4629/eth-4629-02.pdf