Curriculum Vitae
Max Nendel

Contact Information

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Personal Information

Born in Singen am Hohentwiel on May 25th, 1988. Married, two children (0 and 6 years old). German citizen.

Academic Positions

Associate Professor — 12/2024 - Present
Department of Statistics and Actuartial Science, University of Waterloo — Waterloo, Canada

Junior Professor — 06/2021 - 11/2024
Center for Mathematical Economics, Bielefeld University — Bielefeld, Germany

Postdoctoral Researcher — 04/2018 - 05/2021
Center for Mathematical Economics, Bielefeld University — Bielefeld, Germany

Visiting Lecturer — 01/2017 - 05/2017
Departamento de Matemáticas y Estadística, Universidad del Norte — Barranquilla, Colombia

Visiting Lecturer — 10/2015 - 09/2017
Maschinenbau Konstruktion und Entwicklung, HTWG Konstanz — Konstanz, Germany

Teaching Assistant — 05/2014 - 03/2018
Department of Mathematics and Statistics, University of Konstanz — Konstanz, Germany

Student Teaching Assistant — 10/2011 - 04/2014
Department of Mathematics and Statistics, University of Konstanz — Konstanz, Germany

Education

Doctor of Natural Sciences (Dr. rer. nat.), Mathematics — December 20, 2017
University of Konstanz — Konstanz, Germany

Master of Science (M. Sc.), Mathematics — March 21, 2014
University of Konstanz — Konstanz, Germany

Bachelor of Science (B. Sc.), Mathematics — July 5, 2012
University of Konstanz — Konstanz, Germany

Third Party Funding

Principal Investigator — 05/2025 - 04/2030
Discovery Grant — 207,500 CAD
Natural Sciences and Engineering Research Council of Canada

Principal Investigator — 10/2023 - 11/2024
Research Training Group 2865 — Approx. 470,000 Euro
German Research Foundation

Principal Investigator — 01/2022 - 12/2025
Collaborative Research Center 1283, Project C7 — Approx. 400,000 Euro
German Research Foundation

Co-Investigator — 04/2018 - 12/2021
Collaborative Research Center 1283, Project C5
German Research Foundation

Grants and Honors

Sydney Mathematical Research Institute (SMRI)
International Visitor Program 2024-2025 — 8,250 AUD

Wiley Top Cited Article 2021-2022
Markov chains under nonlinear expectation, published in *Mathematical Finance*

Karl Peter Grotemeyer-Preis 2021
Nominee for the Bielefeld University teaching prize

Wiley Top Downloaded Article 2019-2020
Markov chains under nonlinear expectation, published in *Mathematical Finance*

Deutschlandstipendium — 04/2013 - 03/2014
Scholarship, funded by private sponsors and the Federal Government of Germany — 3,600 Euro

Preprints

28. F. Fuchs and M. Nendel. Existence of Viscosity Solutions to Abstract Cauchy Problems via Nonlinear Semigroups. arXiv:2502.18270, 2025

27. M. Kupper, M. Nendel, and A. Sgarabottolo. Hopf-Lax approximation for value functions of Lévy optimal control problems. arXiv:2501.16846, 2025.

26. J. Dianetti, M. Nendel, L. Tangpi, and S. Wang. Pasting of Equilibria and Donsker-type Results for Mean Field Games. arXiv:2411.00633, 2024.

25. S. Della Corte, F. Fuchs, R.C. Kraaij, and M. Nendel. A comparison principle based on couplings of partial integro-differential operators. arXiv:2410.19566, 2024.

24. C. De Vecchi, M. Nendel, and J. Streicher. Upper Comonotonicity and Risk Aggregation under Dependence Uncertainty. arXiv:2406.19242, 2024.

23. J. Blessing and M. Kupper, and M. Nendel. Convergence of infinitesimal generators and stability of convex monotone semigroups. arXiv:2305.18981, 2023.

22. M. Nendel and A. Sgarabottolo. A parametric approach to the estimation of convex risk functionals based on Wasserstein distance. arXiv:2210.14340, 2022.

Publications

21. J. Blessing, R. Denk, M. Kupper, and M. Nendel. Convex monotone semigroups and their generators with respect to Γ-convergence. *J. Funct. Anal.* **288** (2025), 110841 (73 pages). DOI

20. M. Kupper, M. Nendel, and A. Sgarabottolo. Risk measures based on weak optimal transport. *Quant. Finance* **25** (2025), 163-180. DOI

19. M. Nendel. Lower semicontinuity of monotone functionals in the mixed topology on C_b. *Finance Stoch.* **29** (2025), 261-287. DOI

18. B. Goldys, M. Nendel, and M. Röckner. Operator semigroups in the mixed topology and the infinitesimal description of Markov processes. *J. Differential Equations* **412** (2024), 23-86. DOI

17. P. Kurth, M. Nendel, and J. Streicher. A hypothesis test for the long-term calibration in rating systems with overlapping time windows. *Risks* **12** (2024), 131 (28 pages). DOI

16. M. Nendel and J. Streicher. An axiomatic approach to default risk and model uncertainty in rating systems. *J. Math. Econom.* **109** (2023), 102896 (19 pages). DOI

15. R. Denk, M. Kupper, and M. Nendel. Convex semigroups on lattices of continuous functions. *Publ. Res. Inst. Math. Sci.* **59** (2023), 393-421. DOI
14. J. Dianetti, G. Ferrari, M. Fischer, and M. Nendel. A unifying framework for submodular mean field games. *Math. Oper. Res.* **48** (2023), 1679-1710. DOI
13. S. Fuhrmann, M. Kupper, and M. Nendel. Wasserstein perturbations of Markovian transition semigroups. *Ann. Inst. H. Poincaré Probab. Statist.* **59** (2023), 904-932. DOI
12. F.-B. Liebrich and M. Nendel. Separability vs. robustness of Orlicz spaces: financial and economic perspectives. *SIAM J. Financial Math.* **13** (2022), 1344-1378. DOI
11. M. Nendel and M. Röckner. Upper envelopes of families of Feller semigroups and viscosity solutions to a class of nonlinear Cauchy problems. *SIAM J. Control Optim.* **59** (2021), 4400-4428. DOI
10. J. Dianetti, G. Ferrari, M. Fischer, and M. Nendel. Submodular mean field games: existence and approximation of solutions. *Ann. Appl. Probab.* **31** (2021), 2538-2566. DOI
9. M. Nendel, M.D. Schmeck, and F. Riedel. A decomposition of general premium principles into risk and deviation. *Insurance Math. Econom.* **100** (2021), 193-209. DOI
8. R. Denk, M. Kupper, and M. Nendel. Convex semigroups on L^p-like spaces. *J. Evol. Equ.* **21** (2021), 2491-2521. DOI
7. M. Nendel. On nonlinear expectations and Markov chains under model uncertainty. *Internat. J. Approx. Reason.* **130** (2021), 226-245. DOI
6. M. Nendel. Markov chains under nonlinear expectation. *Math. Finance* **31** (2021), 474-507. DOI
5. M. Nendel. A note on stochastic dominance, uniform integrability, and lattice properties. *Bull. Lond. Math. Soc.* **52** (2020), 907-923. DOI
4. R. Denk, M. Kupper, and M. Nendel. A semigroup approach to nonlinear Lévy processes. *Stochastic Process. Appl.* **130** (2020), 1616-1642. DOI
3. B. Barraza, R. Denk, J. Hernández, F. Kammerlander, and M. Nendel. Regularity and asymptotic behavior for a damped plate-membrane transmission problem. *J. Math. Anal. Appl.* **474** (2019), 1082-1103. DOI
2. B. Barraza, R. Denk, J. Hernández, and M. Nendel. Mapping properties for operator-valued pseudodifferential operators on toroidal Besov spaces. *J. Pseudo-Differ. Oper. Appl.* **9** (2018), 523-538. DOI
1. R. Denk, M. Kupper, and M. Nendel. Kolmogorov-type and general extension results for nonlinear expectations. *Banach J. Math. Anal.* **12** (2018), 515-540. DOI

Selected Talks

Quantact CIMMUL Seminar (Université Laval, Québec), 26.03.2025
Partial Differential Equations - a conference in honor of Robert Denk's 60th birthday (University of Konstanz), 21.03.2025
Stochastics and Finance Seminar (The University of Sydney), 04.02.2025
Talks in Financial and Insurance Mathematics (ETH Zurich), 19.12.2024
DEMO 2024 (Vrije Universiteit Brussel, held in Ischia), 18.09.2024
QFW 2024 (Università degli Studi di Bologna), 12.04.2024
Department Seminar Statistics and Actuarial Science (University of Waterloo), 18.12.2023
Model Risk in Finance: Bridging Theory to Applications (University College Dublin), 11.12.2023
Financial Mathematics Seminar (Princeton University), 03.10.2023
AMASES 2023 (Università degli Studi di Milano-Bicocca), 22.09.2023

Seminar in Probability and Finance (Università degli Studi di Padova), 15.09.2023
The Mathematics of Subjective Probability 2023 (Università degli Studi di Milano-Bicocca), 12.09.2023
Seminário de Probabilidades e Estatística (Universidade de Coimbra), 19.07.2023
ISIPTA 2023 (Universidad de Oviedo), 13.07.2023
11th General AMaMeF Conference (Bielefeld University), 26.06.2023
Stochastic Finance Seminar (The University of Warwick, Coventry), 10.05.2023
QFW 2023 (Università degli Studi di Cassino, held in Castello Angioino, Gaeta), 20.04.2023
RUFE Johannesburg (University of Johannesburg), 07.04.2023
Research Seminar of X. Guo (UC Berkeley), 16.12.2022
AustMS 2022 (University of New South Wales, Sydney), 06.12.2022
Stochastics and Finance Seminar (The University of Sydney), 30.11.2022
MAS Colloquium (NTU Singapore), 10.11.2022
Virtual Informal Systems Seminar (McGill University, Montreal / online), 07.10.2022
AMASES 2022 (Università degli Studi di Palermo), 24.09.2022
Advances in Stochastic Control and Optimal Stopping with Applications in Finance and Economics (CIRM Luminy), 14.09.2022
Mathematics and Financial Economics - Many Player Games and Applications (HU Berlin), 30.08.2022
EURO 2022 (Aalto University, Espoo), 05.07.2022
Oberseminar Rough Paths, Stochastic Partial Differential Equations and Related Topics (TU Berlin), 23.06.2022
FDM Seminar (University of Freiburg), 10.06.2022
Oberseminar Stochastic Analysis (University of Konstanz), 07.06.2022
Taming Uncertainty and Complexity in Economics and Finance (LUISS University, Rome), 27.05.2022
Workshop on Stochastic Games and Martingale Optimal Transport (Università degli Studi di Milano), 06.05.2022
Stochastics and Finance Seminar (The University of Sydney / online), 27.04.2022
13th International Workshop on Stochastic Models and Control (Kiel University, held in Lübeck-Travemünde), 16.03.2022
Berlin Probability Colloquium (Humboldt University, Berlin), 12.01.2022
CMStatistics 2021 (King's College, London / online), 20.12.2021
Weekly Seminars on Risk Management and Actuarial Science (University of Waterloo / online), 09.12.2021
German Probability and Statistics Days 2021 (University of Mannheim / online), 28.09.2021
6th Berlin Workshop for Young Researchers in Mathematical Finance (online), 24.08.2021
ISIPTA 2021 (University of Granada / online), 07.07.2021
UQOP 2020 (online), 17.11.2020
Bernoulli-IMS One World Symposium 2020 (online), 24.08.2020 - 28.08.2020
XIII Congress GAFEVOL (Universidad del Norte, Barranquilla), 29.11.2019
Vienna Congress on Mathematical Finance - VCMF 2019 (WU Vienna), 10.09.2019
ISIPTA 2019 (Ghent University), 07/06/2019
9th general AMaMeF Conference (Sorbonne Université, Paris), 12.06.2019
Research Group Computational Mechanics (TU Munich), 10.07.2018
Workshop - Robust Finance (University of Freiburg), 16.05.2018
Mathematical Finance Seminar (Bielefeld University), 18.04.2018
13th German Probability and Statistics Days (University of Freiburg), 01.03.2018
TULKKA Workshop (University of Ulm), 25.07.2017
Mathematical Colloquium (Universidad de los Andes, Bogotá), 23.03.2017
Spring School on Evolution Equations during the Cátedra Europa 2016 (Universidad del Norte, Barranquilla), 14.03.2016 - 18.03.2016
12th German Probability and Statistics Days (University of Bochum), 02.03.2016
2nd International Workshop on Pseudodifferential Operators and Applications (Universidad del Norte, Barranquilla), 12.03.2015

Organization of Scientific Events

Risk Measures and Uncertainty in Insurance, Leibnizhaus, Hannover — May 16 - 17, 2024
Organization with F.-B. Liebrich, F. Riedel, and G. Svindland

ISIPTA 2023, Universidad de Oviedo — July 11 - 14, 2023
Member of the Program Committee

11th General AMeMaF Conference, Ravensberger Spinnerei, Bielefeld — June 26 - 30, 2023
Member of the Local Organizing Committee

Risk Measures and Uncertainty in Insurance, Leibnizhaus, Hannover — May 04 - 05, 2023
Organization with F.-B. Liebrich, F. Riedel, and G. Svindland

Workshop on Imprecise Probability and Robust Finance – ImPRooF, Universidad Politécnica de Cartagena — September 19 – 21, 2022
Organization with J. De Bock, G. de Cooman, M. Kupper, and J.M. Zapata

Risk Measures and Uncertainty in Insurance, Leibnizhaus, Hannover — May 19 - 20, 2022
Organization with F.-B. Liebrich, F. Riedel, and G. Svindland

ISIPTA 2021, Granada / online — July 06 - 09, 2021
Member of the Program Committee

Workshop Equilibria in Markets, Strategic Interactions, and Complex Systems, ZiF, Bielefeld — July 16 -19, 2019
Member of the Local Organizing Committee

Equilibria in Financial Markets: General Equilibrium and Game Theoretic Perspectives, Summer School, Bielefeld University — July 08 - 12, 2019
Member of the Local Organizing Committee

Peer Reviewing (alphabetic order)

AIMS Mathematics; Applicable Analysis; Applied Probability Journals; Bernoulli; Economic Theory; Finance and Stochastics; Fuzzy Sets and Systems; International Game Theory Review; International Journal of Approximate Reasoning; Journal of Banking and Finance; Journal of Evolution Equations; Journal of Mathematical Analysis and Applications; Journal of Mathematical Economics; Mathematics and Financial Economics; Mathematical Finance; Mathematical Methods of Operations Research; Mathematics of Operations Research; Methodology and Computing in Applied Probability; Semigroup Forum; SIAM Journal on Control and Optimization; SIAM Journal on Financial Mathematics; Stochastics and Dynamics; Stochastics and Partial Differential Equations: Analysis and Computations; Stochastic Processes and their Applications.

Teaching

Spring Term 2025 (University of Waterloo): *Actuarial Risk Management; Mathematics of Financial Markets*
Summer Term 2024 (Bielefeld University): *Finance 2; Master and PhD Seminar*
Winter Term 2023/24 (Bielefeld University): *Finance 3; Seminar Finance 3: Stochastic Control and Model Uncertainty in Economics and Finance; Master and PhD Seminar (with F. Riedel)*
Summer Term 2023 (Bielefeld University): *Finance 2*
Summer Term 2022 (Bielefeld University): *Mathematics II for Economics; Master and PhD Seminar (with F. Riedel)*
Winter Term 2021/22 (Bielefeld University): *Mathematics I for Economics; Master and PhD Seminar (with F. Riedel)*
Summer Term 2021 (Bielefeld University): *Mathematics II for Economics*
Summer Term 2019 (Bielefeld University): *Lévy processes: analysis and applications*
Winter Term 2018/19 (Bielefeld University): *Seminar Finance 3: Stochastic Control in Economics and Finance (with G. Ferrari)*
Summer Term 2017 (HTWG Konstanz): *Mathematics 1 for Mechanical Engineering KE (with B. Lege)*
First Term 2017 (Universidad del Norte): *An Introduction to Stochastics and Mathematical Finance in Discrete Time*
Winter Term 2016/17 (HTWG Konstanz): *Mathematics 1 for Mechanical Engineering KE (with B. Lege)*

Winter Term 2011/12 - Winter Term 2017/18 (University of Konstanz): Tutorials in *Analysis I; Analysis II; Analysis III; Functional Analysis; Theory of Partial Differential Equations I; Complex Analysis; Fourier Transform; Stochastics I; Stochastics II; Stochastics III.*

Supervised PhD Theses

Fabian Fuchs (in progress); Alessandro Sgarabottolo (February 18, 2025); Jan Streicher (November 21, 2024); Sven Schweizer, formerly Fuhrmann (supervision with M. Kupper, November 10, 2023).

Supervised Master's Theses

Michael Wertmann (2024); Nina Hollensteiner (2024); Nina Brinkhaus (2024); Diana Epp (2024); Kristina Wegner (2024); Tim Kleine (2022); Shekhzad Khudeeda (2022); Fynn Louis Närmann (supervision with F. Riedel, 2021); Svea Drekshagen (supervision with F. Riedel, 2021); Nathalie Evers (supervision with F. Riedel, 2021); Jonas Urban (supervision with F. Riedel, 2020); Katharina Willmann (supervision with F. Riedel, 2020); Xuan Dang (supervision with F. Riedel, 2019); Mohamed Anouar Ait lahbib (supervision with G. Ferrari, 2019); Yolande Tsane Nanfack (supervision with G. Ferrari, 2019).

Supervised Bachelor's Theses

Martin Faigle (supervision with M. Kupper, 2018).

Referee for PhD Theses

Ramiro Peñas Galezo (Universidad del Norte, August 16, 2022); Thomas Krak (Ghent University, May 07, 2021).

Date: April 21, 2025