Curriculum Vitae

Personal Data

Title	Prof. Dr.
First name	Andreas Heinrich
Name	Hamel
Current position	Full Professor for Mathematics
Current institution, country	Free University of Bozen-Bolzano, Faculty of Economics and Management, Italy
ORCID	0000-0002-3742-3344

Research interests

Set-valued and variational analysis, set and vector optimization, multivariate statistics, game theory, multicriteria decision making

Qualifications and Career

Stages	**Periods and Details**
Diploma in Mathematics	1991, 5-year program at Technische Hochschule Merseburg, Germany
Doctorate	1996, supervisor Prof. H. Benker, “Applications of Ekeland’s Variational Principle in Optimal Control” Martin Luther University Halle-Wittenberg, Germany, summa cum laude
Habilitation	2005 “Variational Principles on Metric and Uniform Spaces” Martin Luther University Halle-Wittenberg 2017 Abilitazione per la prima facia (Italian habilitation for full professor) in scientific sector 13/D4 (Mathematical Methods for Economics, Finance, Insurance)

Stages of academic/professional career	- Since 2021 program director of the bachelor program Economics and Management at Free University Bozen-Bolzano, Italy - Since 10/2018 full professor for mathematics at Free University Bozen-Bolzano, Italy - 09/2013-09/2018 associate professor for mathematics at Free University Bozen-Bolzano, Italy - 02/2010-09/2013 lecturer (six months) and then associate professor for mathematics at Yeshiva University New York, USA - 2007-2010 lecturer and researcher at Princeton University, Department Operations Research and Financial Engineering, USA - 2006 substitute professor for stochastic at Martin Luther University Halle-Wittenberg, Germany - 2005/06 PostDoc at Instituto Matematica Pura e Applicada (IMPA), Rio de Janeiro, Brasil - 1999 six months research stay at Imperial College London, UK, supervisor Prof. R. Vinter (DAAD grant) - 1998-2005 PostDoc (C1) for Mathematics at Martin Luther University Halle-Wittenberg, Germany - 1996-1998 PostDoc at Martin Luther University Halle-Wittenberg, Germany - 1991-1996 Research Assistant (with teaching, PhD position) at Technische Hochschule Merseburg and Martin Luther University Halle-Wittenberg, Germany

Activities in the Research System

- Co-Organization of conference series “Set Optimization for Applications” with editions 2012 in Wittenberg, Germany, 2014 in Bruneck, Italy, 2016 in Vienna, Austria, 2019 in Jena, Germany, 2022 in Ankara, Turkey and 2024 in Stresa, Italy
- Supervised a total of seven 3-year PostDoc positions at Free University of Bozen (RTDa in Italy, two still running) in mathematics
- Organizer and chair of International Summer School on Set Optimization for Applications at Free University of Bozen, Bruneck, June 21 – July 1, 2017
- Organizer and chair of International Summer School on Variational Analysis for Finance and Economics, July 31 – August 12, 2011, at Yeshiva University New York
- Responsible for several **one-day workshops** at Free University of Bozen, e.g., in March 2023, March 2016, March 2015.
- Invited Organizer of Stream “Set-Valued Method in Finance” at the EURO22 conference (4 sessions with 4 contributions each), 2022
- Designed and taught the course “Convex Analysis for Finance and Economics,” the first version of which was run at University Halle-Wittenberg in 2003 and 2006. An extended version became part of the PhD program at the Department of Operations Research and Financial Engineering (ORFE) at Princeton). This course was elected 2008 and 2009 for

the **"Princeton Engineering Commendation List for Outstanding Teaching,"** ORFE, Princeton University.
- Co-Organizer of and main contributor to “Brunecker Mathe-Montag” 2022/23, 2023/24, a string of 5 events per year designed to discuss research results with the general public; topics included, e.g., Game Theory, Risk Modelling, Mathematical Decision Theory, Mathematics and AI, Mathematics and Art.

Supervision of Researchers in Early Career Phases (PhD)

- Linh Truong, (supervisor) at Free University of Bozen, Set-Valued Expectiles for Ordered Data Analysis
- Daniel Kostner, 2018 (supervisor) at Free University of Bozen, A Set Optimization Approach to Multivariate Statistics
- Benjamin Weißing, 2017 (2nd co-advisor) at Friedrich-Schiller-University Jena, The Polyhedral Projection Problem
- Martin Karliczek, 2014 (2nd co-adviser) at Humboldt-University Berlin, Elements of Conditional Optimization and their Applications to Order Theory, magna cum laude
- Carola Schrage, 2009 (co-supervisor) at University Halle-Wittenberg, Set-Valued Convex Analysis”, magna cum laude
- Andreas Löhne, 2005 (co-supervisor) at Martin Luther University Halle-Wittenberg, Optimization with Set Relations, summa cum laude

13 supervisions of diploma, master and senior thesis at University Halle-Wittenberg, Princeton University, Free University of Bozen; 1-3 Bachelor thesis supervisions per year at Free University of Bozen since 2016

Selected Publications

1. Ha T.K.L, Hamel, A.H. (2025). Set-valued expectiles for ordered data analysis, Journal of Multivariate Analysis
2. Hamel, A. H., Kostner, D. (2024). Cone Ranking for Multi-Criteria Decision Making. Neural Computing and Applications, online first, 2024
3. Hager, R., Hamel, A.H., Heyde, F (2023). Ideals of quasi-absorbing elements in semigroups. *arXiv preprint arXiv:2312.09914*
4. Hamel, A. H., Kostner, D. (2022) Computation of quantile sets for bivariate ordered data. *Computational Statistics & Data Analysis*, *169*, 107422
5. Crespi, G. P., Hamel, A. H., Rocca, M., Schrage, C. (2021) Set relations via families of scalar functions and approximate solutions in set optimization. *Mathematics of Operations Research*, *46*(1), 361-381, https://doi.org/10.1287/moor.2020.1060
6. Special Issue Editor: “Vector- and Set-Valued Methods in Stochastic Finance and Related Areas” (2021) Finance and Stochastics 25
7. Hamel, A. H., Heyde, F. (2021). Set-Valued T-Translative Functions and Their Applications in Finance. *Mathematics 9*(18), 2270
8. Ararat, C., Hamel, A. H. (2020) Lower cone distribution functions and set-valued quantiles form Galois connections. *Theory of Probability & Its Applications* 65.2, 179-190, https://doi.org/10.1137/S0040585X97T989908
9. Special Issue Editor (with A. Löhne): “Set Optimization and Applications” (2020) Mathematical Methods of Operations Research 91
10. Hamel, A. H., Kostner, D. (2018) Cone distribution functions and quantiles for multivariate random variables. *Journal of Multivariate Analysis* 167, 97-113
11. Editor: Hamel, A. H., Heyde, F., Löhne, A., Rudloff, B., & Schrage, C. (2015). Set optimization and applications-the state of the art. *Springer Proc. Math. Stat*, *151*.
12. Contributed: Hamel, A. H., Heyde, F., Löhne, A., Rudloff, B., & Schrage, C. (2015). Set optimization—a rather short introduction. In *Set Optimization and Applications-The*

State of the Art: From Set Relations to Set-Valued Risk Measures (pp. 65-141). Springer Berlin Heidelberg
13. Hamel, A. H., Rudloff, B., Yankova, M. (2013) Set-valued average value at risk and its computation. *Mathematics and Financial Economics*, *7*, 229-246, https://doi.org/10.1007/s11579-013-0094-9
14. Hamel, A. H., Schrage, C. (2014). Directional derivatives, subdifferentials and optimality conditions for set-valued convex functions. *Pacific Journal of Optimization*, *10*(4), 667-689, https://hdl.handle.net/10863/12429
15. Hamel, A. H. (2011). A Fenchel–Rockafellar duality theorem for set-valued optimization. *Optimization*, *60* (8-9), 1023-1043, https://doi.org/10.1080/02331934.2010.534794
16. Hamel, A. H., Heyde, F., Rudloff, B. (2011) Set-valued risk measures for conical market models. *Mathematics and Financial Economics*, *5*(1), 1-28, DOI 10.1007/s11579-011-0047-0
17. Hamel, A. H., Heyde, F. (2010) Duality for set-valued measures of risk. *SIAM Journal on Financial Mathematics* 1.1, 66-95, https://doi.org/10.1137/080743494
18. Hamel, A. H. (2009) A duality theory for set-valued functions I: Fenchel conjugation theory. *Set-Valued and Variational Analysis*17 (2009): 153-182, DOI 10.1007/s11228-009-0109-0
19. Hamel, A. H., Löhne, A. (2006) Minimal element theorems and Ekeland's principle with set relations. *Journal of Nonlinear and Convex Analysis* 7.1, 19-37, https://hdl.handle.net/10863/627
20. Hamel, A. (2005). Variational principles on metric and uniform spaces. Habilitation Thesis, Martin Luther University Halle-Wittenberg, 2005.