Institut für Statistik und Operations Research
Department of Statistics and Operations Research

universität wien

ANNUAL REPORT 2017

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1 Foreword

I am pleased to present the Annual Report of the Department of Statistics and Operations Research, which documents some of the many achievements in 2017. The Department of Statistics and Operations Research is part of the Faculty of Business, Economics and Statistics of the University of Vienna. Faculty members are active in research in various fields of Statistics, Econometrics, Operations Research, Applied Mathematics and Computer Science. The department offers degree programs in Statistics at the Bachelor, Master and PhD-level. During the academic year 2016/17 the department taught also many undergraduate and graduate courses for programs run by other departments, including the Department of Business Administration and the Department of Economics.

In 2017, our department has been strengthened by the arrival of Danijel Kivaranovic as Prae Doc assistant, Ilya Archakov and Teresa Scarinci as Post Doc and Martin Marktl as Sys Admin.

Martin Luipersbeck successfully defended his thesis and graduated from the PhD Programme in Statistics and Operations Research.

There were also several departures. Lukas Steinberger got a position at Albert-Ludwigs-Universität Freiburg, Germany. Andreas Wittmann started his PhD at Alpen-Adria-Universität Klagenfurt. Markus Sinnl moved to the INNOCS team at INRIA Lille-Nord Europe, France. Gökhan Cebiroglu now works as Quantitative Modeller at Credit Suisse in London, UK. The department regrets their departures but congratulates them to their successful new career steps. We wish them well in their new positions.

I would like to express special thanks to Dominique Sundt for editing the Annual Report 2017.

Irene Klein

(Head of Department)

Vienna, July 2018

2 Faculty and Staff

Regular Faculty

Corina Birghila (MSc)	Extreme Value Theory, Insurance Pricing
Immanuel Bomze (Prof.)	Operations Research and Quantitative Decision Support, Game Theory and Modelling of Behaviour, Optimization Theory and Application, Asymptotic Statistics, Stochastic Modelling, Dynamical Systems
Marek Chudy (Mgr.)	Macroeconomic Forecasting, Financial Econometrics, Model Selection Methods
Daniela Escobar (MSc)	Linear and Non-Linear Time Series Analysis, Risk Management, Application in Energy Markets
Martin Glanzer (Dipl.-Ing.)	Stochastic optimization and Quantitative Finance
Walter Gutjahr (Prof.)	Optimization Theory, Discrete Optimization, Stochastic Modeling, Multicriteria Decision Analysis
Sandor Guzmics (MSc)	Stochastic Optimization, Financial Mathematics, Systemic Risk in Financial Systems
Johannes Happenhofer (MSc)	
Nikolaus Hautsch (Prof.)	Financial Econometrics, Econometric Modelling of Financial High-Frequency Data, Time Series Econometrics, Time-Varying Volatility and Correlation, Market Liquidity, Market Microstructure Analysis, Systemic Risk, Information Processing on Financial Markets, Risk Management
Kory Johnson (PhD)	Feature selection, Post-selection inference, Fairness, Accountability, and Transparency in Machine Learning (FATML)
Irene Klein (Assoc. Prof.)	Stochastic Finance
Hannes Leeb (Prof.)	Model selection and predictive inference when the number of parameters is of the same order as sample size. nference when fitting mis-specified models. Admissibility of confidence sets.Pitfalls in inference after model selection when using traditional approaches.
Markus Leitner (Dr.)	Operations Research, Combinatorial Optimization, (Mixed)
Ivana Ljubic (Ass. Prof., on leave)	Algorithmic Operations Research, Algorithm Engineering
Georg Pflug (Prof.)	Mathematical Statistics, Stochastic Optimization, Risk Management

Benedikt Pötscher (Prof.)	Econometrics, Statistics, Time Series Analysis
Erhard Reschenhofer (Assoc. Prof.)	Time Series Analysis, Financial Econometrics, Automatic Model Selection, Chronobiology
Werner Schachinger (Assoc. Prof.)	Optimization, Probabilistic Analysis of Algorithms
Christopher Walsh (Dr.)	Non- and Semiparametric Statistics and Econometrics, Financial Econometrics, Time Series, High Dimensional Statistics
Christian Zwatz (Mag.)	

Externally Funded Faculty

Ilya Archakov (Dr.)	
Georg Brandstätter (Dipl.-Ing.)	Combinatorial Optimization, Integer Linear Programming, Transportation and Logistics Optimization
Markus Gabl (MSc)	Copositve Optimization, Quadratic Optimization, Conic Optimization, Robust Optimization
Caroline Geiersbach (Dipl.-Ing.)	Optimal control of PDEs, Stochastic Optimization, Shape Optimization, Multiscale Methods, Numerical Methods
Michael Kahr (MSc)	(Mixed) Integer Linear Programming, Stochastic and Robust Optimization, Conic Optimization, Network Optimization
Martin Luipersbeck (Dipl.-Ing.)	(Mixed) Integer Programming, Network Design, Algorithm
Ivana Milovic (MAS)	Model Selection in High-Dimensional Linear Models
Mathias Pohl (MSc)	Dependence modeling and Copulas, High Frequency Trading, Model Ambiguity, Optimal Transport, Portfolio Optimization, Robust Optimization
Alexander Ristig (Dr.)	Financial econometrics and statistics, Copula and quantile-based dependence concepts, Iterative estimation techniques, Applications in finance, risk management and economics
Mario Ruthmair (Dr.)	Operations Research, Combinatorial Optimization, (Mixed) Integer Linear Programming, Optimization in Network Design, Transport and Logistics

Teresa Scarinci (Dr.)	Optimal control of ODEs (Sensitivity analysis, Optimality conditions, Numerical approximation of solutions of problems with constraints), Nonsmooth analysis and Variational inequalities, Numerical analysis in optimization and optimal controls, Hamilton-Jacobi-Bellman equations
Nina Senitschnig (Dr.)	Mathematical Statistics, Predictive Inference, Shrinkage
Markus Sinnl (PhD)	Theoretical and Computational Aspects of Mixed Integer (Non-)Linear Programming, Decomposition Methods for Mixed Integer (Non-)Linear Programming, Bilevel Programming, Combinatorial Optimization, Bi-and Multi-Objective Optimization, Robust and Stochastic Optimization Matheuristics, Areas of Application: Network Design, Telecommunications, Systems Biology
Lukas Steinberger (Dr.)	Mathematical Statistics, Statistical Analysis of High-Dimensional Data
Andreas Wittmann (BSc)	Risk Management

External Lecturers (Academic Year 2016/2017)

Andreas Baierl (University of Vienna), Julia Theresa Csar (TU Wien), Florian Frommlet (MedUni Vienna), Miguel Gallach (Center for Integrative Bioinformatics Vienna), Wilfried Grossmann (University of Vienna), Georg Heinze (MedUni Vienna), Marcus Hudec (University of Vienna), Nysret Musliu (TU Wien), Daniel Obszelka (University of Vienna), Robin Ristl (University of Vienna), Saharon Rosset (Tel Aviv University), Alexander Tichy (VetMedUni Vienna), Claus Vogl (VetMedUni Vienna).

Teaching Assistants (Academic Year 2016/2017)

Alena Bachleitner, Thomas Hillebrand, Nathalie Hövell, Bernhard Kober, Jan Michael van Linthoudt, Manveer Mangat, Stefan Ortner, Raphael Rath, Thomas Stark, Karina Traub, Lu Bo Zhang

Administrative Assistants

Birgit Ewald, Julia Brandstätter, Gerald Kamhuber (on leave), Vera Lehmwald, Manuela Nicham-Zorn, Dominique Sundt

System Administrators

Jürgen Berlakovich, Stefan Geissler, Rolf Karner, Andreas Loibl, Martin Marktl, Svetlana Mihajlovic

3 Visitors

Christian Blum (University of Basque Country, Spain), Nick Higham (University of Manchester, UK), Alfredo Iusem (IMPA Rio de Janeiro, Brazil), Ruth Misener (Imperial College London, UK), David Preinerstorfer (Université libre de Bruxelles, Belgium), Claudia Sagastizabal (IMPA Rio de Janeiro, Brazil), Luis Vicente (University of Coimbra, Portugal), David Williamson (Cornell University, USA)

4 Teaching

Theses Supervised

PhD Theses in Progress

Supervisor	Author	Title
Immanuel Bomze	Philipp Hungerländer (Alpen-Adria-Universität Klagenfurt, Austria)	Extensions of the Traveling Salesman Problem
Immanuel Bomze	Markus Gabl	A copositive approach to adjustable robust optimization with uncertain recourse
Immanuel Bomze, Markus Leitner	Michael Kahr	Optimization in Social Networks: Influence Propagation and Community Detection
Nikolaus Hautsch	Akos Horvath	The Effectiveness of Post-Crisis Regulatory Measures
Nikolaus Hautsch	Stefan Voigt (VGSF)	TBA
Nikolaus Hautsch	Maximilian Bredendiek (VGSF)	TBA
Hannes Leeb	Johannes Happenhofer	TBA
Ivana Ljubic, Markus Leitner	Georg Brandstätter	Solving optimization problems arising in the context of electric car sharing systems
Ivana Ljubic, Markus Leitner	Martin Luipersbeck	Large-scale Network Optimization: Applications in Bioinformatics
Georg Pflug, Walter Schachermayer	Mathias Pohl	Robust portfolio optimization with copulas
Georg Pflug	Corina Birghila	Insurance premium under ambiguity
Georg Pflug	Daniela Escobar	Analysis of Risk Premia in Energy Markets

Georg Pflug	Caroline Geiersbach	Stochastic Models in Shape Optimization
Georg Pflug	Martin Glanzer	Pricing of Contingent Claims under Model Ambiguity
Georg Pflug	Sandor Guzmics	Systemic Risk in Financial Systems
Benedikt M. Pötscher	Christian Zwatz	TBA
Erhard Reschenhofer	Marek Chudy	Analysis and Predication of Economic Time Series
Erhard Reschenhofer	Manveer Mangat	Essays on stock return and volatility forecasting

PhD Theses Finished

Supervisor	Author	Title
Otto Altenburger, Erhard Reschenhofer	Hannes Leu	Die Aktivierung von Verlustvorträgen als Instrument zur Ergebnissteuerung von Industrieunternehmen – Eine theoretische und empirische Analyse

Master Theses in Progress

Supervisor	Author	Title
Nikolaus Hautsch	André Thea	Forecasting Realised VolatilityUsing Jumps at Ultra-High Frequency
Nikolaus Hautsch	Karina Traub	TBA
Nikolaus Hautsch	Thomas Hillebrand	TBA
Nikolaus Hautsch	Yelena Govgolenko	TBA
Werner Schachinger	Simon Klima	Random Graphs and the Giant Component
Werner Schachinger	Rafael Jochum	Verzweigungsprozesse – Theorie und Anwendung

Master Theses Finished

Supervisor	Author	Title
Immanuel Bomze	Katharina Eibensteiner	Optimization Aspects of Support Vector Machines
Immanuel Bomze	Fabian Steurer	Robust Optimization

Walter Gutjahr	Bernhard Hrobath	Heuristische Optimierung des multimodalen RCPSP mit stochastischen Bearbeitungsdauern
Walter Gutjahr	Peter Holzer	Angewandte statistische Methoden im Condition Monitoring und Predictive Maintenance für Industrieanlagen
Walter Gutjahr	Nadja Friesen	Ring Star Problem with User Equilibrium Constraints
Walter Gutjahr	Alexander Ruth	An Enumerative Approach to the Solution of a Multi-Period Orienteering Problem
Nikolaus Hautsch	André Thea	Estimating Jump Variation Under Noise with High-Frequency Data
Nikolaus Hautsch	Chuandong Tang	Speed Measurements in Financial Markets
Nikolaus Hautsch	Leon Eric Grund	Exploratory Study of the High-Frequency Trade and Quote Option Data from OPRA
Irene Klein	Tommaso Spano	Asset price bubbles between continuous and discrete time
Erhard Reschenhofer (mitbetreut von Gökhan Cebiroglu)	Valeriya Kolesnikova	Data mining methods in financial time-series forecasting
Erhard Reschenhofer	Daniel Povolny	Evaluierung des linearen Modells von Lin und Tsai zur Prognose von Sterbewahrscheinlichkeiten
Erhard Reschenhofer (mitbetreut von Gökhan Cebiroglu)	Georg Reiter	Prognose von NASDAQ Aktienkursen mittels Vektorautoregressiven Modellen
Erhard Reschenhofer	Theodoros Kouimtsidis	Estimation methods for value-at-risk and expected shortfall
Erhard Reschenhofer	Bernhard Kober	Evaluation of Volatility Forecasting Models
Erhard Reschenhofer	Richard Artner	The distribution of stock markets returns and its implications

Bachelor Theses

Immanuel Bomze (7)

5 Publications

Journal Articles

Laengle, Sigifredo Miguel Alejandro; Merigó, José M.; Miranda, Jaime; Słowiński, Roman; **Bomze, Immanuel**; Borgonovo, Emanuele; Dyson , Robert G.; Oliveira, Jose Fernando; Teunter, Ruud: Forty years of the European Journal of Operational Research: A bibliometric overview. In: *European Journal of Operational Research*. 2017; Vol. 262, No. 3. pp. 803-816

Bomze, Immanuel; Cheng, Jianqiang; Dickinson, Peter J C; Lisser, Abdel: A fresh CP look at mixed-binary QPs: new formulations and relaxations. In: *Mathematical Programming*. 2017; Vol. 126, No. 1-2. pp. 159-184

Astorino, Annabella; **Bomze, Immanuel**; Fuduli, Antonio; Gaudioso, Manlio: Robust spherical separation. In: *Optimization: a journal of mathematical programming and operations research*. 2017; Vol. 66, No. 6. pp. 925-938

Brandstätter, Georg; Kahr, Michael; Leitner, Markus: Determining optimal locations for charging stations of electric car-sharing systems under stochastic demand. In: *Transportation Research Part B: Methodological*. 2017; Vol. 104. pp. 17-35

Branke, Juergen; Corrente, Salvatore ; Greco, Salvatore **; Gutjahr, Walter**: Efficient Pairwise Preference Elicitation Allowing for Indifference. In: *Computers & Operations Research*. 2017; Vol. 88. pp. 175-186

Burkart, Christian; Nolz, Pamela C. ; **Gutjahr, Walter:** Modelling beneficiaries' choice in disaster relief logistics. In: *Annals of Operations Research*. 2017; Vol. 256. pp. 41-61

Hautsch, Nikolaus; Horvath, Akos: How Effective Are Trading Pauses? In: *Journal of Financial Economics*. 2017

Bibinger, Markus; **Hautsch, Nikolaus**; Malec, Peter; Reiss, Markus: Estimating the Spot Covariation of Asset Prices—Statistical Theory and Empirical Evidence. In: *Journal of Business and Economic Statistics*. 2017

Cebiroglu, Gökhan; **Hautsch, Nikolaus**; Andersen, Torben G.: Volatility, Information Feedback and Market Microstructure Noise: A Tale of Two Regimes. In: *Journal of Econometrics*. 2017

Gouveia, Luis; **Leitner, Markus; Ruthmair, Mario**: Extended formulations and branch-and-cut algorithms for the Black-and-White Traveling Salesman Problem. In: *European Journal of Operational Research*. 2017; Vol. 262, No. 3. pp. 908-928

Leitner, Markus; Ljubic, Ivana; Salazar-González, Juan-José; **Sinnl, Markus**: An algorithmic framework for the exact solution of tree-star problems. In: *European Journal of Operational Research*. 2017; Vol. 261, No. 1. pp. 54-66

Calik, Hatice; **Leitner, Markus**; **Luipersbeck, Martin**: A Benders decomposition based framework for solving cable trench problems. In: *Computers & Operations Research*. 2017; Vol. 81. pp. 128-140

Gouveia, Luís; **Leitner, Markus**: Design of Survivable Networks with Vulnerability Constraints. In: *European Journal of Operational Research*. 2017; Vol. 258, No. 1. pp. 89-103

Pflug, Georg; Pohl, Mathias: A review on ambiguity in stochastic portfolio optimization. In: *Set-Valued and Variational Analysis*. 2017

Boreiko, Dmitri; Kaniovski, Serguei; Kaniovski, Yuriy; **Pflug, Georg:** Traces of business cycles in credit-rating migrations. In: *PLOS ONE*. 2017; Vol. 12, No. 4.

Pflug, Georg; Timonina, Anna; Hochrainer, Stefan: Incorporating model uncertainty into optimal insurance contract design. In: *Insurance: Mathematics and Economics*. 2017; pp. 68-74

Pflug, Georg; Gaupp, Franziska; Hochrainer, Stefan; Hall, Jim; Dadson, Simon: Dependency of Crop Production between Global Breadbaskets. In: *Risk Analysis: an international journal*. 2017; Vol. 37, No. 11. pp. 2212-2228

Preinerstorfer, David; **Pötscher, Benedikt**: On the Power of Invariant Tests for Hypotheses on a Covariance Matrix. In: *Econometric Theory*. 2017; Vol. 33, No. 1. pp. 1-68

Reschenhofer, Erhard; Sinkovics, Thomas: Examining the profitability of automatic trading strategies with a focus on trend indicators. In: *Quantitative Finance*. 2017; Vol. 17, No. 7. pp. 979-991

Reschenhofer, Erhard: Examining the properties of a simple estimator based on transformed Cauchy variables. In: Journal of Statistics: *Advances in Theory and Applications*. 2017; Vol. 18, No. 1. pp. 45-54

Reschenhofer, Erhard: Using ratios of successive returns for the estimation of serial correlation in return series. In: *Noble International Journal of Economics and Financial Research*. 2017; Vol. 02, No. 09. pp. 125-130

Aronna, Maria Soledad; Tonon, Daniela; Boccia, Andrea; Campos, Cédric Martínez; Mazzola, Marco; Van Nguyen, Luong; Palladino, Michele; **Scarinci, Teresa**; Silva, Francisco J.: Optimality conditions (In Pontryagin form). In: *Lecture Notes in Mathematics*. 2017; Vol. 2180. pp. 1-125

Sinnl, Markus; Ljubic, Ivana; **Leitner, Markus; Luipersbeck, Martin:** A dual-ascent-based branch-and-bound framework for the prize-collecting Steiner tree and related problems. In: *INFORMS Journal on Computing*. 2017

Sinnl, Markus; Luipersbeck, Martin; Álvarez-Miranda, Eduardo: Gotta (efficiently) catch them all: Pokémon GO meets Orienteering Problems. In: *European Journal of Operational Research*. 2017

Contributions to Proceedings and Edited Books

Hautsch, Nikolaus: High-Frequency Trading: Costs and Benefits*. Proceedings of the 44th Economics Conference*. Österreichische Nationalbank. 2017.

Pötscher, Benedikt; Leeb, Hannes: Testing in the Presence of Nuisance Parameters: Some Comments on Tests Post-Model-Selection and Random Critical Values. *Big and Complex Data Analysis: Methodologies and Applications.* Editor: S. Ejaz Ahmed. Springer, 2017. pp. 69-82 (Contributions to Statistics)

Working Papers

Andersen, Torben G.; Cebiroglu, Gökhan; Hautsch, Nikolaus: Volatility, Information Feedback and Market Microstructure Noise: A Tale of Two Regimes. 2017. (Center For Financial Studies; 569).

Rauner, M.; Niessner, H.; **Gutjahr, W.J.:** A dynamic simulation-optimization approach for managing mass casualty incidents.

Gould, Martin D.; **Hautsch, Nikolaus**; Howison, Sam; Porter, Mason A.: Counterparty credit limits: An effective tool for mitigating counterparty risk? 2017. (Center for Financial Studies; 581).

Hautsch, Nikolaus; Voigt, Stefan: Large-Scale Portfolio Allocation under Transaction Costs and Model Uncertainty. 2017. (Center for Financial Studies; 582).

Hautsch, Nikolaus; Noé, Michael; Zhang, Sarah: The Ambivalent Role of High-Frequency Trading in Turbulent Market Periods. 2017. (Center for Financial Studies; 580).

Preinerstorfer, David; **Pötscher, Benedikt:** Further Results on Size and Power of Heteroskedasticity and Autocorrelation Robust Tests, with an Application to Trend Testing. 2017.

6 Dissemination of Research

Workshops and Conferences

	Conference	Title of Presentation
Immanuel Bomze	Optimization 2017, Lisboa, Portugal (Keynote Speaker)	On gaps and dots - duality and attainability in conic optimization Jianqiang Cheng (Contributor) Peter Dickinson (Contributor) Abdel Lisser (Contributor) Werner Schachinger (Contributor) Gabriele Uchida (Contributor)
Immanuel Bomze	Conference of the International Federation of Operational Research Societies: OR/Analytics for a Better World, Quebec City, Canada (Invited Speaker)	Semi-Lagrangian relaxations of CDT problems - a copositive view
Immanuel Bomze	15th EUROPT Workshop on Advances in Continuous Optimization, Montreal, Canada (Contributor)	A fresh CP look at mixed-binary QPs: new formulations and relaxations Jianqiang Cheng (Speaker) Peter Dickinson (Contributor) Abdel Lisser (Contributor)
Immanuel Bomze	15th EUROPT Workshop on Advances in Continuous Optimization, Montreal, Canada (Contributor)	Min-Max fractional quadratic over linear problems Paula Amaral (Speaker)
Immanuel Bomze	15th EUROPT Workshop on Advances in Continuous Optimization, Montreal, Canada	Trust your data or not - Standard remains Standard (QP) Michael Kahr (Contributor) Markus Leitner (Contributor) Werner Schachinger (Contributor) Reinhard Ullrich (Contributor)
Immanuel Bomze	Mathematical Optimization in the Decision Support Systems for Efficient and Robust Energy Networks, Modena, Italy (Invited Speaker)	The complexity of simple models - a study of worst and typical hard cases for the Standard Quadratic Problem (StQP) Werner Schachinger (Contributor) Reinhard Ullrich (Contributor)
Martin Glanzer	PGMO Days 2017, Paris-Saclay, France	Participant
Martin Glanzer	INFORMS Annual Meeting 2017, Houston, USA	Acceptability pricing of contingent claims under model ambiguity using stochastic optimization

Martin Glanzer	European Conference on Stochastic Optimization, Rome, Italy	Acceptability pricing of contingent claims under model ambiguity using stochastic optimization
Nikolaus Hautsch	Financial Econometrics Conference, Heidelberg, Germany	Volatility, Information Feedback and Market Microstructure Noise: A Tale of Two Regimes
Nikolaus Hautsch	Jahrestagung Verein für Socialpolitik: Alternative Geld- und Finanzarchitekturen, Vienna, Austria (Invited Speaker)	Large Scale Portfolio Allocation Under Transaction Costs and Model Uncertainty
Nikolaus Hautsch	10th Annual Society for Financial Econometrics (SoFiE), New York, USA	Large Scale Portfolio Allocation Under Transaction Costs and Model Uncertainty: Adaptive Mixing of High and Low Frequency Information
Nikolaus Hautsch	Stochastic Dynamical Models in Mathematical Finance, Econometrics, and Actuarial Sciences, Lausanne, Switzerland (Invited Speaker)	Large Scale Portfolio Allocation Under Transaction Costs and Model Uncertainty: Adaptive Mixing of High and Low Frequency Information
Nikolaus Hautsch	VIECO 2017: Vienna-Copenhagen Conference on Financial Econometrics, Vienna, Austria	Participant
Nikolaus Hautsch	Big Data in Predictive Dynamic Econometric Modeling, Philadelphia, USA (Invited Speaker)	Large Scale Portfolio Allocation Under Transaction Costs and Model Uncertainty: Adaptive Mixing of High and Low Frequency Information
Irene Klein	Freiburg-Vienna-Zürich-Seminar, Zurich, Switzerland	A fundamental theorem of asset pricing for large financial markets under restricted information (Lp case)
Irene Klein	Oberwolfach Workshop - Mathematics of Quantitative Finance, Oberwolfach, Germany (Invited Speaker)	A fundamental theorem of asset pricing for large financial markets under restricted information (Lp case)
Markus Leitner	Optimization 2017, Lisboa, Portugal	The Network Design Problem with Vulnerability Constraints Martim Barros Joyce Moniz (Contributor) Luis Gouveia (Contributor)

Markus Leitner	International Network Optimization Conference 2017, Lisboa, Portugal	Using Variables Aggregation and Benders Decomposition for Solving Large-Scale Extended Formulations Bernard Fortz (Contributor)
Georg Pflug	SESO 2017 International Thematic Week: Smart Energy and Stochastic Optimization, Paris, France (Invited Speaker)	Model uncertainty in energy optimization
Georg Pflug	Models and Methods of Robust Optimization, Kaiserslautern, Germany	Distributionally robust stochastic optimization
Georg Pflug	EURO Winter School, Italy	Multistage stochastic programs
Georg Pflug	PGMO Days 2017, Paris-Saclay, France	Incorporating Model Error in the Management of Financial and Electricity Portfolios
Georg Pflug	ESI Program on Tractability of High Dimensional Problems and Discrepancy, Vienna, Austria (Invited Speaker)	Scenario tree generation (probability quantification) for multistage stochastic programs
Benedikt Pötscher	NBER-NSF Time Series Conference, Evanston, USA	Controlling the Size of Autocorrelation Robust Tests
Benedikt Pötscher	VIECO 2017: Vienna-Copenhagen Conference on Financial Econometrics, Vienna, Austria	Participant
Mario Ruthmair	Optimization 2017, Lisboa, Portugal	Layered Graph Approaches for the Black-and-White Traveling Salesman Problem
Mario Ruthmair	International Network Optimization Conference 2017, Lisboa, Portugal	Extended Formulations and Branch-and-Cut Algorithms for the Black-and-White Traveling Salesman Problem
Mario Ruthmair	21st Combinatorial Optimization Workshop, Aussois, France	Participant
Teresa Scarinci	Giornata Progetto GNAMPA: Comportamento asintotico e controllo di equazioni di evoluzione nonlineari, Firenze, Italy	On the regularity and the singular support of the minimum time function with Hörmander vector fields
Teresa Scarinci	Summer School "Stochastic PDEs, games and biology", L'Aquila, Italy	Participant

Teresa Scarinci	New Trends in Control Theory and PDEs, Rome, Italy	Bi-metric regularity properties and time-discretization schemes for LQ problems with bang-bang solutions
Teresa Scarinci	Mathematical Control Theory, Porquerolles, France	Time discretization schemes for LQ optimal control problems with bang-bang solutions
Teresa Scarinci	11th International Conference on Large-Scale Scientific Computations, Sozopol, Bulgaria	Time discretization schemes for LQ optimal control problems with bang-bang solutions
Nina Senitschnig	European Meeting of Statisticians, Helsinki, Finland	Shrinkage methods for prediction out-of-sample: Model selection and predictive inference
Markus Sinnl	IMA and OR Society Conference on Mathematics of Operational Research, Birmingham, UK	A general-purpose solution framework for mixed-integer bilevel linear problems
Markus Sinnl	International Network Opimization Conference 2017, Lisboa, Portugal	Optimal Design of Nature Reserves Considering Connectivity and Buffer Zones
Markus Sinnl	21st Combinatorial Optimization Workshop, Aussois, France	Interdiction Games and Monotonicity

Outside Seminars

	Institution	**Title of Presentation**
Immanuel Bomze	Universidad de Sevilla, Spain	The complexity of simple models - a study of worst and typical hard cases of the StQP
Immanuel Bomze	Università Commerciale Luigi Bocconi, Italy (invited)	Trust your data or not - Standard remains Standard (QP)
Nikolaus Hautsch	Royal Holloway, University of London, UK (invited)	Large Scale Portfolio Allocation Under Transaction Costs and Model Uncertainty
Nikolaus Hautsch	Universität zu Köln, Germany (invited)	Large Scale Portfolio Allocation Under Transaction Costs and Model Uncertainty

Nikolaus Hautsch	WU Vienna, Austria	Volatility, Information Feedback and Market Microstructure Noise: A Tale of Two Regimes
Nikolaus Hautsch	TU Dresden, Germany	High Speed on Financial Markets – Blessing or Curse?
Georg Pflug	École polytechnique fédérale de Lausanne, Switzerland	Ambiguity in Portfolio selection
Georg Pflug	CORE Louvain, France (invited)	Model Uncertainty and Distributional Robustness in Stochastic Optimization
Georg Pflug	TU Chemnitz, Germany (invited)	On ambiguity models
Georg Pflug	Università degli Studi di Bergamo, Italy (invited)	Sensitivity and distributional robustness in financial optimization: the contributions of Marida Bertocchi and beyond
Benedikt Pötscher	TU Wien, Austria	Controlling the Size of Autocorrelation Robust Tests
Benedikt Pötscher	Johannes Kepler Universität Linz, Austria	Controlling the Size of Autocorrelation Robust Tests
Teresa Scarinci	Università degli Studi di Roma "Tor Vergata", Italy	On the regularity and the singular support of the minimum time function with Hörmander vector fields

Departmental Seminar = ISOR Colloquium

January 9	Gerda Claeskens (University Leuven, Belgium)	Minimax optimal procedures for testing the structure of multidimensional functions
January 16	Majid Al-Sadoon (Pompeu Fabra University, Spain)	The Linear Systems Approach to Linear Rational Expectations Models
January 23	Enno Mammen (University Heidelberg, Germany)	Optimal Estimation of Sparse High-Dimensional Additive Models
March 6	Martine Labbé (Universite Libre de Bruxelles, Belgium)	Bilevel optimisation and Stackelberg problems
March 20	Miguel F. Anjos (Polytechnique Montreal, Canada)	Mathematical optimization approaches for facility layout problems

March 27	Kory D. Johnson (University of Vienna)	Valid Stepwise Regression with Sequential Testing
April 3	Markus Bibinger (University Marburg, Germany)	Nonparametric change-point analysis of volatility
April 24	Efstathia Bura (TU Wien)	Sufficient Reductions in Regressions With Exponential Family Inverse Predictors
May 8	Marc Hoffmann (Universités Paris Dauphine, France)	A tentative definition of statistical inference across scales
May 15	Kim Christensen (Aarhus University, Denmark)	The Drift Burst Hypothesis
May 22	Siem Jan Koopman (VU Amsterdam, the Netherlands)	Dynamic Discrete Copula Models for High Frequency Stock Price Changes (joint with Rutger Lit and Andre Lucas)
May 29	Hande Yaman (Bilkent University, Turkey)	Exact Methods for Non-Hamiltonian Routing Problems
June 12	Mokshay Madiman(University Delaware, USA)	Concentration of information for convex measures
June 19	Jörg Stoye (University Bonn, Germany)	Confidence Intervals for Projections of Partially Identified Parameters (with Hiroaki Kaido and Francesca Molinari)
October 2	Francisco Saldanha da Gama (University Lisbon, Portugal)	Facility location with Bernoulli demands: optimization models and solution Procedures
October 9	Saharon Rosset (Tel Aviv University, Israel)	Quality Preserving Databases: Statistically Sound and Efficient Use of Public Databases for an Infinite Sequence of Tests
October 16	Bent Nielsen (University of Oxford, UK)	Asymptotic theory of M-estimators for multiple linear regression in time series (joint work with S. Johansen)
October 23	Florian Jarre (University Düsseldorf, Germany)	The max-cut-polytope and its set-completely-positive representations
October 30	Anders Bredahl Kock (Aarhus University; University of Oxford)	Optimal dynamic treatment allocation
November 6	René Henrion (WIAS Berlin, Germany)	Probabilistic Constraints in infinite dimensions

November 13	Steffen Rebennack (Karlsruher Institut für Technologie, Germany)	Strategic Bidding for a Price-Maker Hydroelectric Producer (joint work with Gregory Steeger and Timo Lohmann)
November 20	Bernard Fortz (Universite Libre de Bruxelles, Belgium)	Unit Commitment under Market Equilibrium Constraints (joint work with Luce Brotcorne, Fabio D'Andreagiovanni and Jérôme De Boeck)
November 27	Mounir Haddou (Universite de Rennes, France)	Numerical methods for Mathematical Programs with Complementarity Constraint
December 4	Klaus Nordhausen (TU Wien)	Extracting conditionally heteroscedastic components using ICA
December 11	Giovanni Rinaldi (IASI-CNR Rome, Italy)	The Max-Cut problem: exact methods and heuristics based on quantum techniques

7 Grants and Externally Funded Research Projects

Immanuel Bomze (Project-Coordinator, taken over from Ivana Ljubic in 09/2015) Research Associates: Markus Sinnl	Title: Network Optimzation in Bioinformatics and Sytems Biology Funding: FWF Runtime: 2014-2019
Nikolaus Hautsch (Principal Investigator) Research Associates: Ilya Archakov	Title: Order Book Foundations of Price Risks and Liquidity: An Integrated Equity and Derivatives Markets Perspective Funding: FWF Runtime: 2017-2020
Hannes Leeb (Principal Investigator), Research Associates: Ivana Milovic, Lukas Steinberger	Title: Model selection and inference with sparse models when the true model need not be sparse Funding: FWF Runtime: 2015-2017
Hannes Leeb (Principal Investigator), Research Associate: Nina Senitschnig	Title: Shrinkage estimators for prediction out-of-sample Funding: FWF Runtime: 2014-2018
Markus Leitner (Project-Coordinator), Research Associates: Georg Brandstätter	Title: Models for Ecological, Economical, Efficient, Electric Car-Sharing (e4-share) Funding: FFG (via Joint Programming Initiative Urban Europe) Runtime: 2014-2017
Markus Leitner (Principal Investigator), Research Associates: Mario Ruthmair	Title: Optimization and Analysis of Large-Scale Networks Funding: WWTF Runtime: 2015-2018

Georg Pflug (Project-Coordinator), **Immanuel Bomze** (Co-Investigator), Radu Ioan Bot (Co-Investigator), Monika Henzinger (Co-Investigator), Arnold Neumaier (Co-Investigator), Günther Raidl (Co-Investigator) Hermann Schichl (Co-Investigator) Research Associates: Axel Böhm, Marko Djukanovic, **Markus Gabl, Caroline Geiersbach**, Mathias Horn, Morteza Kimiaei, Stefan Neumann, Dang Khoa Nguyen	Title: Vienna Graduate School on Computational Optimization (VGSCO) Funding: FWF Runtime: 2016-2020
Georg Pflug (Project-Coordinator) Research Associates: Andreas Wittmann	Title: Risk Capital Reserves for Flood Catastrophes in National and European Context Funding: Jubliäumsfonds der Österreichischen Nationalbank Runtime: 2014-2017
Georg Pflug (Project-Coordinator) Research Associates: Daniela Escobar, Martin Glanzer	Title: Incorporating Error in the Management of Electricity Portfoloios Funding: Université de Paris Sud Mathematique – FMJH Runtime: 2017-2019
Walter Schachermayer (Project-Coordinator), **Georg Pflug** (Co-Investigator), **Nikolaus Hautsch** (Co-Investigator) Research Associates: **Mathias Pohl**, **Alexander Ristig**, Ludovic Tangpi	Title: Portfolio Risk and Asset Allocation - Utilizing High-Frequency Information in High Dimensions Funding: WWTF Runtime: 2015-2019

8 Research Stays at Other Institutions

	Institution	**Weeks**
Immanuel Bomze	Mathematisches Forschungsinstitut Oberwolfach, Germany	1
Immanuel Bomze	Université Paris XI - Paris-Sud, France	0,5
Marek Chudy	The University of Chicago, USA	24
Martin Glanzer	EDF R&D, Paris, France	0,5
Markus Leitner	Università degli Studi di Bologna, Italy	0,5
Georg Pflug	Freie Universität Bozen, Italy	1

Mario Ruthmair	Università degli Studi di Padova	0,5
Mario Ruthmair	Universidade de Lisboa, Portugal	0,5
Mario Ruthmair	Università degli Studi di Bologna, Italy	0,5

9 Other Faculty Activities

Editorial Work

Immanuel Bomze

Editor
- European Journal of Operational Research

Member of Editorial Board
- Advances in Data Analysis and Classification
- Central European Journal of Operations Research
- Financial Mathematics and Applications
- Journal of Global Optimization
- Optimization Letters
- Operations Research Perspectives

Walter Gutjahr

Co-Editor
- OR Spectrum

Associate Editor
- Central European Journal of Operations Research

Member of Editorial Board
- Production and Operations Management
- EURO Journal on Decision Processes

Nikolaus Hautsch

Associate Editor
- Journal of Applied Econometrics
- Journal of Business & Economic Statistics
- International Journal of Forecasting
- Empirical Economics
- Journal of Financial Econometrics
- Market Microstructure and Liquidity

Member of Editorial Board
- Econometrics

Reviewer for Workshops
- 3rd Vienna Workshop on High Dimensional Time Series in Macroeconomics and Finance (Vienna, Austria)
- Finance Down Under Conference (Melbourne, Australia)
- 10th Annual Society for Financial Econometrics (SoFiE) (New York, USA)

Hannes Leeb

Associate Editor
- Sankhya: Indian Journal of Statistics

Georg Pflug

Associate Editor
- Computational Optimization and Applications
- Computational Management Science
- Central European Journal of OR
- Austrian Journal of Statistics
- Energy Systems: Optimization, Modeling, Simulation and Economic Aspects
- Operations Research
- Journal of Stochastic Analysis

Member of Editorial Board
- Financial Mathematics and Applications

Benedikt M. Pötscher

Co-Editor of
- Econometric Theory

Associate Editor of
- Journal of Statistical Planning and Inference

Refereeing

Immanuel Bomze
- Journal of Optimization Theory and Applications
- Mathematics of Operations Research
- Optimization Letters

Walter J. Gutjahr
- Central European J. of Operations Research (1)
- Computers and Operations Research (1)
- Engineering Optimization (1)
- European J. of Operational Research (7)
- IISE Transactions (1)
- International J. of Production Research (1)
- International Transactions in Operational Research (1)
- J. of Humanitarian Logistics and Supply Chain Management (1)
- J. of the Operational Research Society (2)
- Management Science (1)
- Naval Research Logistics (1)
- Omega (2)
- Operations Research for Health Care (1)
- OR Spectrum (1)
- Production and Operations Management (1)
- Transportation Research Part E (3)

Research Projects
- Research Foundation Flanders (Belgium)
- Swiss National Science Foundation

Nikolaus Hautsch	▪ Econometrica ▪ Journal of Applied Econometrics (2) ▪ Annals of Statistics ▪ Journal of Econometrics (2) ▪ DFG
Irene Klein	▪ Finance & Stochastics (2)
Benedikt M. Pötscher	▪ Biometrika
Mario Ruthmair	▪ Central European Journal of Operations Research ▪ European Journal of Operations Research ▪ INFORMS Journal on Computing ▪ 4 OR Reviewer for Conferences ▪ International Network Optimization Conference 2017 ▪ 8th International Conference on Computational Logistics
Werner Schachinger	▪ Bulletin of the Malaysian Mathematical Sciences Society ▪ Mathematical Programming

Public Relations Activities

▪ Nikolaus Hautsch	▪ ORF Ö1 Radiokolleg, Thema: Transaktionssteuer (18.12.2017) ▪ ORF Ö1 Radiokolleg, Thema: Quants (09.10.2017) ▪ Interview in Magazin "Competence - Magazin für Wissen und Weiterbildung des Postgraduate Center der Universität Wien" (18.09.2017) ▪ Keynote Speaker at Finance Lounge, Finance Alumni Club (Vienna, Austria): High-Frequency Trading, January 2017 ▪ Club Research Panel Discussion “Nach der globalen Finanzkrise – Ein neues ökonomisches Denken?“, Vienna, July 2017 ▪ Keynote Speaker at the 44th Economics Conference OeNB (Vienna, Austria): High-Frequency Trading - Costs and Benefits

Other Professional Activities

Immanuel Bomze	▪ Deputy Director of Studies PhD Program, University of Vienna, Austria ▪ EJOR Editor Meeting, Porto, Portugal, April/May 2017 ▪ VGSCO Retreat, Puchberg am Schneeberg, Austria, May 2017 ▪ Co-Organizer of Workshop 1744b Copositivity and Complete Positivity, Oberwolfach, Germany, 29.10.-04.11.2017 ▪ EJOR Editorial Meeting, Porto, Portugal, 29.04.-03.05.2017 ▪ VGSCO Retreat, Puchberg am Schneeberg, Austria, 12.-13.05.2017

Gökhan Cebiroglu	▪ Organiser of VIECO 2017: Vienna-Copenhagen Conference on Financial Econometrics (Vienna, Austria, March 2017)
Walter J. Gutjahr	▪ Program Committee Member MIC 2017 ▪ Program Committee Member EvoCOP 2017 ▪ Program Committee Member GECCO 2017
Nikolaus Hautsch	▪ Vice-Dean of the Faculty of Business, Economics and Statistics, University of Vienna, Austria
Irene Klein	▪ Co-Organizer Freiburg-Vienna-Zurich-Seminar, Vienna, Austria, 18.09.-19.09.2017 ▪ Head of Department: Statistics and Operations Research
Georg Pflug	▪ Speaker of the Vienna Graduate School on Computational Optimization ▪ Member FWF-Kuratorium (Applied Mathematics) ▪ Chair/Speaker of Faculty Board at the Faculty of Business, Economics and Statistics, University of Vienna ▪ Adviser at PDMU-2017 Problems of Decision Making under Uncertainties (Vilnius, Lithuania, August 2017) ▪ Scientific Advisory Board Member at IMPA - Instituto Nacional de Matemática Pura e Aplicada, Brasil
Benedikt M. Pötscher	▪ External Member of Recruitment Committee for Full Professor Position in Statistics at TU Dortmund ▪ Member of Program Committee for the Vienna.Copenhagen Conference on Financial Econometrics ▪ Co-organizer of Workshop “Model Selection, Regularization and Inference”
Erhard Reschenhofer	▪ Deputy Director of Studies Programme Business, Economics and Statistics (University of Vienna)