ANNUAL REPORT
2016
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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 2016. 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 2015/16 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 2016, our department has been strengthened by the arrival of Markus Gabl, Caroline Geiersbach, Johannes Happenhofer, Kory Johnson, Michael Kahr, Andreas Wittmann and Christian Zwatz as assistants.

Ivana Milovic and Reinhard Ullrich successfully defended their theses and graduated from the PhD Programme in Statistics and Operations Research.

Markus Leitner received his habilitation (venia docendi) in Operations Research and is now Assistant Professor.

There were also several departures. Yousef Ello (Sys Admin) left the department. The following people left the department to pursue their next career steps at excellent universities: David Preinerstorfer started as Postdoc at CREATE, Aarhus University and continued then as Postdoc at ECARES, Université libre de Bruxelles. Lukas Steinberger started as Postdoc at Freiburg University. 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 2016.

Irene Klein
(Head of Department)

Vienna, November 2017
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)


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. Inference when fitting mis-specified models. Admissibility of confidence sets. Pitfalls in inference after model selection when using traditional approaches.
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
David Preinerstorfer (Dr.)  Mathematical Statistics, Econometrics, Time Series Analysis, Psychometrics
Erhard Reschenhofer (Assoc. Prof.)  Time Series Analysis, Financial Econometrics, Automatic Model Selection, Chronobiology
Werner Schachinger (Assoc. Prof.)  Optimization, Probabilistic Analysis of Algorithms
Reinhard Ullrich (MMag.)  Evolutionary Game Theory and Dynamical Systems
Christopher Walsh (Dr.)  Non- and Semiparametric Statistics and Econometrics, Financial Econometrics, Time Series, High Dimensional Statistics
Christian Zwatz (Mag.)

Externally Funded Faculty

Georg Brandstätter (Dipl.-Ing.)  Combinatorial Optimization, Integer Linear Programming, Transportation and Logistics Optimization
Markus Gabl (MSc)  Copositive 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, large-scale networks
Markus Leitner (Dr.)  Operations Research, Combinatorial Optimization, (Mixed) Integer Linear Programming, Multi-objective 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.)

Nina Senitschnigg (Dr., on leave)  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 2015/16)
Andreas Baierl, Manfred Deistler (TU Vienna), Evelina Erlacher, Karl Ewald, Florian Frommlet (MedUni Vienna), Miguel Gallach, Andrea Gaunersdorfer, Thomas Glaser, Yuri Goegebeur (Syddansk Universitet, Denmark), Wilfried Grossmann, Marcus Hudec, Milos Kopa (Charles University Prague), Nysret Musliu (TU Vienna), Herbert Nagel (WU Vienna), Andreas Novak, Daniel Obszelka, Gerhard Paulinger, Peter Reiter, Robin Ristl, Harald Schwab, Alexander Tichy (VetMedUni Vienna), Gabriele Uchida, Johannes Wessely.

Teaching Assistants (Academic Year 2015/16)
Alena Bachleitner, Annemarie Grass, Bernhard Kober, Michael Kossmeier, Daniel Povolny, Alexander Ruth, 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, Svetlana Mihajlovic

3 Visitors

Kurt Anstreicher (Iowa State University), Amir Beck (TECHNION Israel), István Berkes (TU Graz, Austria), Paula Brito (University of Porto, Portugal), Matteo Fischetti (University of Padova, Italy), Bernard Fortz (Universite Libre de Bruxelles, Belgium), Jacek Gondzio (University of Edinburgh), Luís Gouveia (Universidade de Lisboa, Portugal), Anthony D. Hall (University of Technology Sydney, Australia), Michele Monaci (Università di Bologna, Italy), Francesca Maggioni (Università di Bergamo, Italy), Filippo Masini (Università di Bologna, Italy)

4 Teaching

Theses Supervised

PhD Theses in Progress

<table>
<thead>
<tr>
<th>Supervisor</th>
<th>Author</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immanuel Bomze</td>
<td>Markus Gabl</td>
<td>A copositive approach to adjustable robust optimization with uncertain recourse</td>
</tr>
<tr>
<td>Immanuel Bomze</td>
<td>Philipp Hungerländer</td>
<td>Extensions of the Traveling Salesman Problem</td>
</tr>
<tr>
<td>Immanuel Bomze, Markus Leitner*</td>
<td>Michael Kahr</td>
<td>Optimization in Social Networks: Influence Propagation and Community Detection</td>
</tr>
<tr>
<td>Nikolaus Hautsch</td>
<td>Akos Horvath</td>
<td>The Effectiveness of Post-Crisis Regulatory Measures</td>
</tr>
<tr>
<td>Hannes Leeb</td>
<td>Johannes Happenhofer</td>
<td>TBA</td>
</tr>
<tr>
<td>Ivana Ljubic, Markus Leitner*</td>
<td>Georg Brandstätter</td>
<td>Solving optimization problems arising in the context of electric car sharing systems</td>
</tr>
<tr>
<td>Ivana Ljubic, Markus Leitner*</td>
<td>Martin Luipersbeck</td>
<td>Large-scale Network Optimization: Applications in Bioinformatics</td>
</tr>
<tr>
<td>Georg Pflug, Walter Schachermayer</td>
<td>Mathias Pohl</td>
<td>Robust portfolio optimization with copulas</td>
</tr>
<tr>
<td>Supervisor</td>
<td>Author</td>
<td>Title</td>
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<tr>
<td>Georg Pflug</td>
<td>Corina Birghila</td>
<td>Insurance premium under ambiguity</td>
</tr>
<tr>
<td>Georg Pflug</td>
<td>Daniela Escobar</td>
<td>Analysis of Risk Premia in Energy Markets</td>
</tr>
<tr>
<td>Georg Pflug</td>
<td>Caroline Geiersbach</td>
<td>Stochastic Models in Shape Optimization</td>
</tr>
<tr>
<td>Georg Pflug</td>
<td>Martin Glanzer</td>
<td>Pricing of Contingent Claims under Model Ambiguity</td>
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<tr>
<td>Georg Pflug</td>
<td>Sandor Guzmics</td>
<td>Systemic Risk in Financial Systems</td>
</tr>
<tr>
<td>Georg Pflug</td>
<td>Eric Laas-Nesbitt</td>
<td>Trust-Region Methods for Endogenous Stochastic Optimization</td>
</tr>
<tr>
<td>Benedikt M. Pötscher</td>
<td>Christian Zwatz</td>
<td>TBA</td>
</tr>
<tr>
<td>Erhard Reschenhofer</td>
<td>Marek Chudy</td>
<td>Analysis and Predication of Economic Time Series</td>
</tr>
<tr>
<td>Erhard Reschenhofer</td>
<td>Hannes Leu</td>
<td>Die Aktivierung von Verlustvorträgen als Instrument zur Ergebnissteuerung von Industrieunternehmen – Eine theoretische und empirische Analyse</td>
</tr>
</tbody>
</table>

**PhD Theses Finished**

<table>
<thead>
<tr>
<th>Supervisor</th>
<th>Author</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immanuel Bomze, Werner Schachinger*</td>
<td>Reinhard Ullrich</td>
<td>Selecting equilibria from an ample choice</td>
</tr>
<tr>
<td>Hannes Leeb</td>
<td>Ivana Milovic</td>
<td>Conditional means of low-dimensional projections from high-dimensional data</td>
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</table>

**Master Theses in Progress**

<table>
<thead>
<tr>
<th>Supervisor</th>
<th>Author</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immanuel Bomze</td>
<td>Katharina Eibensteiner</td>
<td>Machine Learning and Optimization</td>
</tr>
<tr>
<td>Nikolaus Hautsch</td>
<td>André Thea</td>
<td>Forecasting Realised VolatilityUsing Jumps at Ultra-High Frequency</td>
</tr>
<tr>
<td>Irene Klein</td>
<td>Tommaso Spano</td>
<td>TBA</td>
</tr>
<tr>
<td>Georg Pflug</td>
<td>Theodoros Kouimtsidis</td>
<td>Systemic risk for the Austrian banking system</td>
</tr>
<tr>
<td>Werner Schachinger</td>
<td>Simon Klima</td>
<td>Random Graphs and the Giant Component</td>
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# Master Theses Finished

<table>
<thead>
<tr>
<th>Supervisor</th>
<th>Author</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>Immanuel Bomze</td>
<td>Markus Gabl</td>
<td>Semidefinite programming: theory and applications in finance</td>
</tr>
<tr>
<td>Walter J. Gutjahr</td>
<td>Wolfgang Haidinger</td>
<td>Kognitive Schwierigkeit von Präferenz- versus Indifferenzaussagen: Ein Experiment zum Materialeinkaufsverhalten österreichischer Dachdecker</td>
</tr>
<tr>
<td>Walter J. Gutjahr</td>
<td>Robin Ristl</td>
<td>Optimal exact tests for multiple binary endpoints</td>
</tr>
<tr>
<td>Walter J. Gutjahr, Markus Leitner*</td>
<td>Michael Kahr</td>
<td>Determining optimal locations for electric-car sharing stations under stochastic demand</td>
</tr>
<tr>
<td>Nikolaus Hautsch</td>
<td>Florian Johannes</td>
<td>Optimal Order Placement in Limit Order Book Markets</td>
</tr>
<tr>
<td>Nikolaus Hautsch</td>
<td>Stefan Müller</td>
<td>Volatility Knockout Options – A Pricing Guide</td>
</tr>
<tr>
<td>Nikolaus Hautsch</td>
<td>Ana Petrovic</td>
<td>Value-at-Risk Estimation Using Time-Varying Copulas</td>
</tr>
<tr>
<td>Irene Klein</td>
<td>Marko Kuncic</td>
<td>Pricing of barrier options</td>
</tr>
<tr>
<td>Georg Pflug</td>
<td>Christian Zwatz</td>
<td>Copula-GARCH-Modelle angewendet auf CDS-Spreads einer Auswahl internationaler Banken</td>
</tr>
<tr>
<td>Erhard Reschenhofer</td>
<td>Thomas Sinkovics</td>
<td>Evaluation of the performance of the Automatic-1-2-3 trend indicator</td>
</tr>
</tbody>
</table>

# Bachelor Theses

Immanuel Bomze (9), Hannes Leeb (2), Erhard Reschenhofer (3)
5 Publications

Journal Articles


**Contributions to Proceedings and Edited Books**


Walsh, C., Schmölz, A.: Stop the Mob! Pre-service Teachers Designing a Serious Game to Challenge Bullying. In: A. De Gloria (Ed.): Games and Learning Alliance: 4th International Conference, GALA 2015, Rome, Italy, December 9-11, 2015; revised selected papers (p. 431-440) (Lecture Notes in Computer Science, Vol. 9599)

Working Papers

Brandstätter, G.; Kahr, M.; Leitner, M.: Determining optimal locations for charging stations of electric car-sharing under stochastic demand. (submitted)

Chudy, M.; Reschenhofer, E.: Macroeconomic forecasting with many predictors (submitted)

Cebiroglu, G., Hautsch, N., Walsh, C.: Revisiting the Stealth Trading Hypothesis: Does Time-Varying Liquidity Explain the Size Effect?

Felberbauer, T.; Gutjahr, W. J.; Doerner, K. F.: Stochastic project management: Multiple projects with multi-skilled human resources.


Perez-Ostafe, L., Klein, I., Cordero, F.: Asymptotic arbitrage in fractional mixed markets.


Reschenhofer, E.; Sinkovics, T.: Examining the profitability of automatic trading strategies with a focus on trend indicators (to appear in Quantitative Finance)

Reschenhofer, E.; Stark, T.: Forecasting the yield curve with dynamic factors (submitted)


6 Dissemination of Research

Workshops and Conferences

<table>
<thead>
<tr>
<th>Name</th>
<th>Conference</th>
<th>Title of Presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immanuel Bomze</td>
<td>XIII Global Optimization Workshop, Braga, Portugal</td>
<td>Finding and analyzing hard instances of the Standard Quadratic Optimization Problem</td>
</tr>
<tr>
<td>Immanuel Bomze</td>
<td>EURO2016 - 28th European Conference on Operational Research, Poznan, Poland</td>
<td>Data science, machine learning, ternary and other hard decision problems: how copositive optimization can help</td>
</tr>
<tr>
<td>Immanuel Bomze</td>
<td>14th EUROPT Workshop on</td>
<td>The complexity of simple models -</td>
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</tbody>
</table>
Immanuel Bomze
Advances in Continuous Optimization Warsaw, Poland
a study of worst and typical hard cases for the Standard Quadratic Optimization Problem
XI Brazilian Workshop on Continuous Optimization, Manaus, Brasil (invited)
Tightening Dual Bounds for QCQPs by Copositivity

Georg Brandstätter
EULOG 2016: Workshop in Honor of R.F. Hartl, Vienna, Austria
On optimally placing charging stations in an electric car sharing network
VeRoLog 2016: annual workshop of the EURO working group on Vehicle Routing and Logistics optimization, Nantes, France
On finding optimal charging station locations in an electric car sharing system
ISCO 2016 - 4th International Symposium on Combinatorial Optimization, Vietri sul Mare, Italy
On optimally placing charging stations in an electric car sharing network

Gökhan Cebiroglu
Financial Econometrics and Empirical Asset Pricing Conference: SoFiE Co-sponsored Joint Conference, Lancaster, UK
Volatility, Information Feedbacks and Market Microstructure: A Tale of two Regimes

Marek Chudy
Austrian Research and Innovation Talk: Big Data – From Technology & Engineering to Humanities, Toronto, Canada
High Frequency Meets High Dimension: a Story of Big Data

Daniela Debora Escobar
CMS2016 - Computational Management Science 2016, Salamanca, Spain
Analysis of Risk Premia in Energy Markets

Martin Glanzer
Vienna Congress on Mathematical Finance, Austria
Poster Presentation
<table>
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<tr>
<th>Name</th>
<th>Event</th>
<th>Topic</th>
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</thead>
<tbody>
<tr>
<td>Walter J. Gutjahr</td>
<td>First EURO Hope mini-conference, Hamburg, Germany</td>
<td>Some Topics in Shelter Location Planning</td>
</tr>
<tr>
<td>Nikolaus Hautsch</td>
<td>New Developments in Measuring and Forecasting Financial Volatility, Durham, USA (invited)</td>
<td>Volatility, Information Feedback and Market Microstructure Noise: A Tale of Two Regimes</td>
</tr>
<tr>
<td>Nikolaus Hautsch</td>
<td>Symposium on Financial Engineering and Risk Management (FERM), Guangzhou, China (invited)</td>
<td>Volatility, Information Feedback and Market Microstructure Noise: A Tale of Two Regimes</td>
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<tr>
<td>Hannes Leeb</td>
<td>Workshop on Model Selection, Leuven, Belgium (invited)</td>
<td>How to justify fitting simple models to high-dimensional data</td>
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<tr>
<td>Martin Luipersbeck</td>
<td>EURO2016 - 28th European Conference on Operational Research, Poznan, Poland</td>
<td>A dual-ascent-based branch-and-bound framework for the prize-collecting Steiner tree and related problems</td>
</tr>
<tr>
<td>Martin Luipersbeck</td>
<td>CPAIOR 2016, Banff, Kanada</td>
<td>Optimal Upgrading Schemes for Effective Shortest Paths in Networks</td>
</tr>
<tr>
<td>Martin Luipersbeck</td>
<td>ISCO 2016 - 4th International Symposium on Combinatorial Optimization, Vietri sul Mare, Italy</td>
<td>A dual-ascent-based branch-and-bound framework for the prize-collecting Steiner tree and related problems</td>
</tr>
<tr>
<td>Georg Pflug</td>
<td>OR2016: International Conference on Operations Research, Hamburg, Germany</td>
<td>Bounds for stochastic multistage optimization problems</td>
</tr>
<tr>
<td>Georg Pflug</td>
<td>Data Driven Operations Management, Eindhoven, the Netherlands (Keynote Speaker)</td>
<td>Decision making under uncertainty: data-driven modeling</td>
</tr>
<tr>
<td>Georg Pflug</td>
<td>Energy Research Workshop Disentis 2016, Switzerland</td>
<td>Risk premia in energy markets</td>
</tr>
<tr>
<td>Georg Pflug</td>
<td>CMS2016 - Computational Management Science 2016, Salamanca, Spain</td>
<td>Optimal insurance design under ambiguity</td>
</tr>
<tr>
<td>Name</td>
<td>Institution</td>
<td>Title of Presentation</td>
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<tr>
<td>Benedikt M. Pötscher</td>
<td>Workshop: New Approaches to the Identification of Macroeconomic Models, Oxford University, UK (invited)</td>
<td>Controlling the Size of Autocorrelation Robust Tests</td>
</tr>
<tr>
<td>Benedikt M. Pötscher</td>
<td>CREATEES, Aarhus University, Denmark (invited)</td>
<td>Controlling the Size of Autocorrelation Robust Tests</td>
</tr>
<tr>
<td>Mario Ruthmair</td>
<td>EURO2016 - 28th European Conference on Operational Research, Poznan, Poland</td>
<td>Models for Electric Vehicle Routing Problems with Load-dependent Energy Consumption</td>
</tr>
<tr>
<td>Mario Ruthmair</td>
<td>ISCO 2016 - 4th International Symposium on Combinatorial Optimization, Vietri sul Mare, Italy</td>
<td>Flow and Layered Graph Models for the Black-and-White Traveling Salesman Problem</td>
</tr>
<tr>
<td>Werner Schachinger</td>
<td>XIII Global Optimization Workshop, Braga, Portugal</td>
<td>Constructing Standard Quadratic Optimization Problems with Many Local Solutions</td>
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<tr>
<td>Markus Sinnl</td>
<td>EURO2016 - 28th European Conference on Operational Research, Poznan, Poland</td>
<td>Decomposition Approaches for Interdiction Problems</td>
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<tr>
<td>Markus Sinnl</td>
<td>18th Conference on Integer Programming and Combinatorial Optimization, Liege, Belgium</td>
<td>Intersection Cuts for Bilevel Optimization</td>
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<tr>
<td>Markus Sinnl</td>
<td>ISCO 2016 - 4th International Symposium on Combinatorial Optimization, Vietri sul Mare, Italy</td>
<td>On Interdiction Problems over Independence Systems</td>
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<tr>
<td>Lukas Steinberger</td>
<td>Workshop on Model Selection, Leuven, Belgium (invited)</td>
<td>Statistical inference when fitting simple models to high-dimensional data</td>
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<tr>
<td>Christopher Walsh</td>
<td>9th International Conference of the ERCIM WG on Computational and Methodological Statistics, Sevilla, Spain (invited)</td>
<td>Analysing dynamic interactions in limit order book markets using nonparametric methods</td>
</tr>
</tbody>
</table>

**Outside Seminars**

<table>
<thead>
<tr>
<th>Institution</th>
<th>Title of Presentation</th>
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</thead>
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16
Immanuel Bomze  
Koc University, Istanbul, Turkey (invited)  
Ternary and other hard decision problems: how copositive optimization can help

Immanuel Bomze  
University Trier, Germany (invited)  
The role of copositivity in optimality conditions and relaxation bounds

Immanuel Bomze  
Maastricht University, the Netherlands (invited)  
Copositive Optimization

Immanuel Bomze  
Universidad de Sevilla, Spain (invited)  
Copositive Optimization

Immanuel Bomze  
TU Graz, Austria (invited)  
New bounds for the cp-rank in copositive optimization

Georg Brandstätter  
Università degli Studi di Bologna, Italy  
ILP formulations for finding optimal locations for charging stations in an electric car sharing network

Marek Chudy  
University of Pennsylvania, Philadelphia, USA  
Portfolio Risk and Asset Allocation: Utilizing high freq. information in high dimensions

Walter J. Gutjahr  
WU Vienna, Austria  
Bi-objective Bilevel Optimization of Facility Locations Considering User Equilibria

Walter J. Gutjahr  
University of Applied Sciences and Arts of Southern Switzerland (SUPSI), Lugano, Switzerland  
Bi-objective Bilevel Location Planning with Deterministic and Stochastic User Equilibrium Models

Walter J. Gutjahr  
Koc University, Istanbul, Turkey  
Bi-objective Bilevel Optimization of Facility Locations under Congestion

Nikolaus Hautsch  
University Pompeu Fabra, Barcelona, Spain (invited)  
Volatility, Information Feedback and Market Microstructure Noise: A Tale of Two Regimes

Nikolaus Hautsch  
Humboldt-Universität zu Berlin, Germany (invited)  
Volatility, Information Feedback and Market Microstructure Noise: A Tale of Two Regimes

Nikolaus Hautsch  
Aarhus University, Denmark (invited)  
Volatility, Information Feedback and Market Microstructure Noise: A Tale of Two Regimes
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<thead>
<tr>
<th>Name</th>
<th>Institution and Location</th>
<th>Topic</th>
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<tbody>
<tr>
<td>Nikolaus Hautsch</td>
<td>Banca d'Italia, Italy (invited)</td>
<td>The Hidden Side of the Market: Order Exposure and Liquidity Coordination</td>
</tr>
<tr>
<td>Nikolaus Hautsch</td>
<td>Duke University, Durham, North Carolina, USA (invited)</td>
<td>High Speed on Financial Markets – Blessing or Curse?</td>
</tr>
<tr>
<td>Nikolaus Hautsch</td>
<td>Karlsruher Institut für Technologie, Germany, (invited)</td>
<td>Revisiting the Stealth Trading Hypothesis – Does Time-Varying Liquidity Explain The Size-Effect?</td>
</tr>
<tr>
<td>Georg Pflug</td>
<td>Technical University of Denmark</td>
<td>Stochastic Optimization in Energy</td>
</tr>
<tr>
<td>Georg Pflug</td>
<td>Universidade de Santiago de Compostela (USC), Spain</td>
<td>Stochastic Optimization and Approximation</td>
</tr>
<tr>
<td>Georg Pflug</td>
<td>Università degli Studi di Bergamo, Italy</td>
<td>Risk Management: Risk measures, ambiguity models and systemic risk</td>
</tr>
<tr>
<td>Georg Pflug</td>
<td>University Trier, Germany</td>
<td>Multistage stochastic optimization: Approximation, bounds and ambiguity</td>
</tr>
<tr>
<td>Georg Pflug</td>
<td>IMPA - Instituto Nacional de Matemática Pura e Aplicada, Rio de Janeiro, Brasil (invited)</td>
<td>Multistage stochastic programs: Time consistency and martingale bounds</td>
</tr>
<tr>
<td>Georg Pflug</td>
<td>Wolfgang Pauli Institute (WPI) Vienna, Austria (invited)</td>
<td>Pricing of electricity contracts</td>
</tr>
<tr>
<td>Georg Pflug</td>
<td>University of Warsaw, Poland (invited)</td>
<td>On systemic Risk</td>
</tr>
<tr>
<td>Benedikt M. Pötscher</td>
<td>TU Dortmund, Germany (invited)</td>
<td>Manfred Deistler and the Identifiability of Linear Systems (Laudatio anlaesslich der Verleihung des Ehrendoktorats der TU Dortmund an Manfred Deistler)</td>
</tr>
<tr>
<td>Lukas Steinberger</td>
<td>Université Toulouse III Paul Sabatier, France (invited)</td>
<td>Statistical inference when fitting simple models to high-dimensional data</td>
</tr>
<tr>
<td>Date</td>
<td>Speaker</td>
<td>Title</td>
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<tr>
<td>January 11</td>
<td>Holger Dette (Ruhr University Bochum, Germany)</td>
<td>Quantile spectral analysis</td>
</tr>
<tr>
<td>January 18</td>
<td>Emanuele Borgonovo (Bocconi University Milano, Italy)</td>
<td>Integral Sensitivity in Linear Programming (joint work with Greg Buzzard and Richard Wendell)</td>
</tr>
<tr>
<td>March 7</td>
<td>Johanna Bertl (Aarhus University, Denmark)</td>
<td>Analysis of the mutation rate in whole-genome cancer data to find cancer causing mutations</td>
</tr>
<tr>
<td>April 4</td>
<td>Christopher Walsh (University of Vienna, Austria)</td>
<td>Estimating Nonlinear Additive Models with Nonstationarities and Correlated Errors</td>
</tr>
<tr>
<td>April 11</td>
<td>Christa Cuchiero (University of Vienna, Austria)</td>
<td>Polynomial Processes in Stochastic Portfolio Theory</td>
</tr>
<tr>
<td>April 18</td>
<td>Ariel Neufeld (ETH Zurich, Switzerland)</td>
<td>On Asymptotic Exponential Arbitrage</td>
</tr>
<tr>
<td>April 25</td>
<td>Carsten Jentsch (University of Mannheim, Germany)</td>
<td>Asymptotic Theory and Bootstrap Inference for weak VARs and weak Proxy SVARs (joint work with Ralf Brüggemann, Kurt G. Lunsford and Carsten Trenkler)</td>
</tr>
<tr>
<td>May 2</td>
<td>Mario Ruthmair (University of Vienna, Austria)</td>
<td>Modeling and Solving Pickup and Delivery Traveling Salesman Problems</td>
</tr>
<tr>
<td>May 9</td>
<td>Josef Teichmann (ETH Zurich, Switzerland)</td>
<td>Affine processes and non-linear differential equations (joint work with Georg Grafendorfer and Christa Cuchiero)</td>
</tr>
<tr>
<td>May 23</td>
<td>Milos Kopa (Charles University Prague, Czech Republic)</td>
<td>Robustness in stochastic programs with decision dependent randomness</td>
</tr>
<tr>
<td>May 30</td>
<td>James Duffy (University of Oxford, UK)</td>
<td>Limit theory for functionals of linear processes at the boundary of non-stationarity (joint work with I. Kasparis)</td>
</tr>
<tr>
<td>June 6</td>
<td>Andres Santos (UC San Diego, USA)</td>
<td>Inference on Directionally Differentiable Functions</td>
</tr>
<tr>
<td>June 13</td>
<td>Daniel Kuhn (EPFL Lausanne, Switzerland)</td>
<td>Ambiguous Joint Chance Constraints under Mean and Dispersion Information</td>
</tr>
<tr>
<td>June 20</td>
<td>Piotr Jaworski</td>
<td>On systemic risk and Conditional Value at Risk</td>
</tr>
</tbody>
</table>
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 Optimization in Bioinformatics and Systems Biology
Funding: FWF
Runtime: 2014-2019
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 Senitschnigg (on maternity leave)
Title: Shrinkage estimators for prediction out-of-sample
Funding: FWF
Runtime: 2014-2016

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 Kimiae, Stefan Neumann, Dang Khoa Nguyen
Title: Vienna Graduate School on Computational Optimization (VGSCO) – Doktoratskolleg
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: Jubiläumsfonds der Österreichischen Nationalbank
Runtime: 2014-2018

Benedikt M. Pötscher (Principal Investigator)
Title: Autocorrelation Robust Testing in Regression Models
Funding: FWF
Runtime: 2015-2016

Walter Schachermayer (Project-Coordinator), Georg Pflug (Co-
Investigator), Nikolaus Hautsch (Co-Investigator)
Research Associates: Mathias Pohl, Alexander Ristig, Ludovic Tangpi

Funding: WWTF
Runtime: 2015-2019
8 Research Stays at Other Institutions

<table>
<thead>
<tr>
<th>Institution</th>
<th>Topics</th>
<th>Weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irene Klein ETH Zurich, Switzerland</td>
<td>Large financial markets with restricted information</td>
<td>1</td>
</tr>
<tr>
<td>Markus Leitner Universitat Politècnica de Catalunya, Spain</td>
<td>Arc routing</td>
<td>1</td>
</tr>
<tr>
<td>Markus Leitner Université Libre de Bruxelles, Belgium</td>
<td>Project Meeting e4-share, cooperation with B. Fortz</td>
<td>1</td>
</tr>
<tr>
<td>Georg Pflug Freie Universität Bozen, Italy</td>
<td>Systemic Risk</td>
<td>1</td>
</tr>
</tbody>
</table>

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 Associate Editor
- OR Spectrum
- Central European Journal of Operations Research

Member of Editorial Board
- Production and Operations Management
- Swarm Intelligence
- 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

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

Walter J. Gutjahr
- Applied Soft Computing (1)
- Central European Journal of Operations Research (1)
- Computers and Industrial Engineering (1)
- Computers and Operations Research (3)
- European Journal of Operational Research (4)
- Informs Journal on Computing (1)
- International Transactions in Operational Research (1)
- Journal of the Operations Research Society (1)
- Networks (1)
- Operations Research (1)
- Production and Operations Management (1)
- Surveys in Operations Research and Management Science (1)
- Transactions on Evolutionary Computation (2)
- Transportation Research Part E (2)
- Transportmetrica B (1)
Refereeing of Research Projects:
- Swiss National Science Foundation (1)
- Czech Science Foundation (1)

Nikolaus Hautsch
- Journal of Econometrics (3)
- Journal of Business & Economic Statistics
- Journal of Banking and Finance
- Journal of Applied Econometrics (2)
- Journal of Finance
- Mathematics and Financial Economics
- Economic Modeling

Irene Klein
- Bernoulli Journal (1)
- Journal of mathematical Analysis and Applications (1)

Hannes Leeb
- Journal of the American Statistical Association (1)
- Annals of Statistics (2)
- Journal of Statistical Planning and Inference (1)

Benedikt M. Pötscher
- Biometrika
- Journal of the American Statistical Association
- Quantitative Economics
- Statistical Science

Werner Schachinger
- Linear Algebra and its Applications

Other Professional Activities

Immanuel Bomze
- Deputy Director of Studies PhD Program, University of Vienna, Austria

Walter J. Gutjahr
- Program Committee Member ANTS 2016
- Program Committee Member EvoCOP 2017
- Program Committee Member GECCO 2016
- Program Committee Member Matheuristics 2016
- Program Committee Member PPSN 2016

Nikolaus Hautsch
- Vice Dean of the Faculty of Business, Economics and Statistics, University of Vienna, Austria

Irene Klein
- Head of Department (Statistics and Operations Research), University of Vienna, since October 2016
- Co-Organizer: Vienna Congress on Mathematical Finance, Vienna, Austria

Hannes Leeb
- Head of Department (Statistics and Operations Research), University of Vienna, until September 2016
- Bernoulli Society European Regional Committee
Georg Pflug
- Bernoulli Society ERC Conference Committee
- 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
- Advisory Board CMS 2016 (Universidad Rey Juan Carlos, Madrid, Spain)
- Scientific Committee OR2016 (International Conference on Operations Research)

Erhard Reschenhofer
- Deputy Director of Studies Programme Business, Economics and Statistics (University of Vienna), since October 2016

Werner Schachinger
- Deputy Director of Studies Programme Business, Economics and Statistics (University of Vienna), until September 2016