ANNUAL REPORT
2018
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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 2018. The Department of Statistics and Operations Research is part of the School of Business, Economics and Statistics of the University of Vienna. Members of the department are active in research in various areas of Statistics, Econometrics, Operations Research, Applied Mathematics and Computer Science. The department offers degree programs in Statistics at the Bachelor, Master and the PhD-level. Members of the department are also active in service teaching for other departments in our School, including the Department of Business Administration and the Department of Economics.

In 2018, Manveer Mangat joined the department as a Prae Doc assistant, and Lisa Carli as an administrative assistant.

There were also several departures in 2018: Walter Gutjahr retired after many years in our department. We are very grateful to him for his many contributions and wish him well in his retirement. Christopher Walsh left for a Post Doc position at TU Dortmund, while Ivana Milovic, Alexander Ristig, and Nina Senitschnig went into industry. Johannes Happenhofer as well as Dominique Sundt decided to pursue other career options. We wish them all well in their new endeavours.

Special thanks are due to Lisa Carli and Birgit Ewald for editing the Annual Report 2018.

Benedikt M. Pötscher

(Head of Department)

Vienna, July 2019
2 Faculty and Staff

Faculty

Ilya Archakov (Dr.) Financial Econometrics

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

Walter Gutjahr (Prof.) Optimization Theory, Discrete Optimization, Stochastic Modeling, Multicriteria Decision Analysis


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.

Markus Leitner (Dr.) Operations Research, Combinatorial Optimization

Ivana Ljubic (Ass. Prof., on leave) Algorithmic Operations Research, Algorithm Engineering

Ivana Milovic (PhD) Model Selection in High-Dimensional Linear Models

Georg Pflug (Prof.) Mathematical Statistics, Stochastic Optimization, Risk Management

Mathias Pohl (PhD) Dependence modelling and Copulas, High Frequency Trading, Model Ambiguity, Optimal Transport, Portfolio Optimization, Robust Optimization

Benedikt Pötscher (Prof.) Econometrics, Statistics, Time Series Analysis

Erhard Reschenhofer (Assoc. Prof.) Time Series Analysis, Financial Econometrics, Automatic Model Selection, Chronobiology

Alexander Ristig (Dr.) Financial econometrics and statistics, Copula and quantile-
based dependence concepts, Iterative estimation techniques, Applications in finance, risk management

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

Werner Schachinger (Assoc. Prof.) Optimization, Probabilistic Analysis of Algorithms

Nina Senitschnig (PhD) 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

Christopher Walsh (Dr.) Non- and Semiparametric Statistics and Econometrics, Financial Econometrics, Time Series, High Dimensional Statistics

PhD Students

Corina Birghila (MSc) Extreme Value Theory, Insurance Pricing

Georg Brandstätter (Dipl.-Ing.) Combinatorial Optimization, Integer Linear Programming, Transportation and Logistics Optimization

Daniela Escobar (MSc) Linear and Non-Linear Time Series Analysis, Risk Management, Application in Energy Markets

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

Martin Glanzer (Dipl.-Ing.) Stochastic optimization and Quantitative Finance

Sandor Guzmics (MSc) Stochastic Optimization, Financial Mathematics, Systemic Risk in Financial Systems

Johannes Happenhofer (MSc)
Michael Kahr (MSc)  (Mixed) Integer Linear Programming, Stochastic and Robust Optimization, Conic Optimization, Network Optimization

Danijel Kivaranovic (Mag.)  Inference post-model-selection, Predictive inference with machine learning algorithms

Martin Luipersbeck (Dipl.-Ing.)  (Mixed) Integer Programming, Network Design, Algorithm

Manveer Mangat (Msc)  Time Series Analysis, Financial Econometrics

Christian Zwatz (Mag.)  Autocorrelation Robust Testing, Spatial Econometrics

External Lecturers (Academic Year 2017/2018)

Andreas Baierl (University of Vienna), Johann Brandstetter (University of Vienna), Florian Frommlet (MedUni Vienna), Annemarie Grass (University of Vienna), Wilfried Grossmann (University of Vienna), Moshe Haviv (Hebrew University of Jerusalem), Marcus Hudec (University of Vienna), Christoph Krall (University of Vienna), Nysret Musliu (TU Vienna), Herbert Nagel (WU Vienna), Daniel Obszella (University of Vienna), Robin Ristl (MedUni Vienna), Theresa Scharl-Hirsch (Boku Vienna), Leopold Sögener (IHS Vienna), Alexander Tichy (VetMedUni Vienna), Anna Timonina-Farkas (EPFL Switzerland), Clemens Sauerzopf (Data Technology), Gerhard Svolba (SAS), Gabriele Uchida (University of Vienna), Claus Vogl (VetMedUni Vienna), Bertram Wassermann (University of Vienna).

Teaching Assistants (Academic Year 2017/2018)

William Burton, Nathalie Coreth (née Hövell), Manuel Hahn, Thomas Hillebrand, Azadeh Sadat Mirathaeri, Manuel Müller, Stefan Ortner, Alexandra Posa, Raphael Rath, Anastasiia Riabushkina, Christoph Sattler, Thomas Stark.

Administrative Assistants

Julia Brandstätter, Lisa Carli, Birgit Ewald, 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

Heinz Bauschke (University of British Columbia, Canada), Luis Gouveia (University of Lisbon, Portugal), Daniel Kuhn (École polytechnique fédérale de Lausanne, Switzerland), Petra Mutzel (Technische Universität Dortmund, Germany), Arkadi Nemirovski (Georgia Institute of Technology,
4 Teaching

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>Philipp Hungerländer (Alpen-Adria-Universität Klagenfurt, Austria)</td>
<td>Extensions of the Traveling Salesman Problem</td>
</tr>
<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, 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>Stefan Voigt (VGSF)</td>
<td>TBA</td>
</tr>
<tr>
<td>Nikolaus Hautsch</td>
<td>Maximilian Bredendiek (VGSF)</td>
<td>Essays in Empirical Asset Pricing</td>
</tr>
<tr>
<td>Hannes Leeb</td>
<td>Johannes Happenhofer</td>
<td>TBA</td>
</tr>
<tr>
<td>Hannes Leeb</td>
<td>Danijel Kivaranovic</td>
<td>Statistical analysis and development of inference procedures post-model-selection</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>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>
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<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>Benedikt M. Pötscher</td>
<td>Christian Zwatz</td>
<td>Topics in Autocorrelation Robust Testing and Spatial Models</td>
</tr>
<tr>
<td>Erhard Reschenhofer</td>
<td>Manveer Mangat</td>
<td>Essays on stock return and volatility forecasting</td>
</tr>
</tbody>
</table>
### PhD Theses Finished

<table>
<thead>
<tr>
<th>Supervisor</th>
<th>Author</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nikolaus Hautsch</td>
<td>Akos Horvath</td>
<td>The Effectiveness of Post-Crisis Regulatory Measures</td>
</tr>
<tr>
<td>Georg Pflug, Walter Schachermayer</td>
<td>Mathias Pohl</td>
<td>Robust portfolio optimization with copulas</td>
</tr>
<tr>
<td>Erhard Reschenhofer</td>
<td>Marek Chudy</td>
<td>Essays on forecasting of economic and financial time series</td>
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</table>

### Master Theses in Progress

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<thead>
<tr>
<th>Supervisor</th>
<th>Author</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nikolaus Hautsch</td>
<td>André Thea</td>
<td>Forecasting Realised Volatility Using Jumps at Ultra-High Frequency</td>
</tr>
<tr>
<td>Nikolaus Hautsch</td>
<td>Thomas Hillebrand</td>
<td>TBA</td>
</tr>
<tr>
<td>Nikolaus Hautsch</td>
<td>Yelena Govgolenko</td>
<td>TBA</td>
</tr>
<tr>
<td>Mario Ruthmair, Markus Leitner</td>
<td>Raimund Hirz</td>
<td>Obtaining Exact Solutions for the Traveling Salesman Problem with Drone</td>
</tr>
<tr>
<td>Mario Ruthmair</td>
<td>Johann Schiffer</td>
<td>Vehicle Routing in Medical Support (preliminary title)</td>
</tr>
<tr>
<td>Werner Schachinger</td>
<td>Simon Klima</td>
<td>Random Graphs and the Giant Component</td>
</tr>
<tr>
<td>Werner Schachinger</td>
<td>Rafael Jochum</td>
<td>Verzweigungsprozesse – Theorie und Anwendung</td>
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### Master Theses Finished

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<thead>
<tr>
<th>Supervisor</th>
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<tbody>
<tr>
<td>Walter Gutjahr</td>
<td>Rath, Raphael</td>
<td>Bikriterielle ungleichheits-averse Standortoptimierung für Hilfseinrichtungen in Erdbebenregionen</td>
</tr>
<tr>
<td>Walter Gutjahr</td>
<td>Güttler, Julia</td>
<td>Including tour costs in a covering problem with user equilibria</td>
</tr>
<tr>
<td>Walter Gutjahr</td>
<td>Fischer, Sophie</td>
<td>Fairness und Deprivation Costs in der Humanitären Logistik: ein Lösungsansatz mittels Partikelschwarmoptimierung</td>
</tr>
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</table>
Walter Gutjahr  Özdemir, Cicek  Modellierung von Unsicherheit im Transportproblem

Walter Gutjahr  Celik, Hülya  Risikoanalyse für das lineare Zuordnungsproblem mit zufälligen Erträgen

Walter Gutjahr  Schmid, Sabrina  Kosteneffizienz und Standortoptimierung von Cooling Centers

Nikolaus Hautsch  Eva Kranebitter  Effectiveness of European and US-American Quantitative Easing: A Comparison

Georg Pflug  Christoph Schachinger  Portfolio optimization via smoothing the V@R

Georg Pflug  Michal Majka  Modelling of low probability high impact events

Erhard Reschenhofer  Nathalie Marie Agnes Coreth  A predictive model for identifying patients at risk for secondary progressive multiple sclerosis progression

Erhard Reschenhofer  Iwona Lewicka  Study of disaster risk models across blocks of developed and less-developed countries

Erhard Reschenhofer  Tomislav Maruščak  Data Analytics for Smart Product Configuration – Statistical Analysis of Operational Log Data in a Smart City Platform

Mario Ruthmair Markus Leitner  Ludwig Müller  The Target Set Selection Problem with Arbitrary Edge Weights

Mario Ruthmair Markus Leitner  Zvezdana Milosevic  Crowdsourced Delivery: An Alternative to In-House Delivery

**Bachelor Theses**

Immanuel Bomze (5)

Hannes Leeb (1)

Erhard Reschenhofer (2)
5 Publications

Journal Articles

Bomze, Immanuel; Cheng, Jianqiang; Dickinson, Peter; Lisser, Abdel; Liu, Jia: Notoriously hard (mixed-)binary QPs: empirical evidence on new completely positive approaches. In: Computational Management Science. 2018

Bomze, Immanuel; Rinaldi, Francesco; Rota Bulò, Samuel: Pure infection–immunization dynamics for partnership games: A correction. In: Games and Economic Behavior. 2018


Felberbauer, Thomas; Gutjahr, Walter; Dörner, Karl Franz: Stochastic project management: Multiple projects with multi-skilled human resources. In: Journal of Scheduling. 2018


Fischetti, Matteo; Kahr, Michael; Leitner, Markus; Monaci, Michele; Ruthmair, Mario: Least cost influence propagation in (social) networks. In: Mathematical Programming. 2018; Vol. 170, No. 1. pp. 293-325


Leitner, Markus; Ljubic, Ivana; Riedler, Martin; Ruthmair, Mario: Exact approaches for the directed network design problem with relays. In: Omega. 2018


Brännström, Ake; Boza, Gergely; Dieckmann, Ulf; Hochrainer-Stigler, Stefan; Linnerooth-Bayer, Joanne; Pflug, Georg; Poledna, Sebastian; Rovenskaya, Elena; Thurner, Stefan: Integrating Systemic Risk and Risk Analysis Using Copulas. In: International Journal of Disaster Risk Science. 2018, Vol. 9, No. 4. pp. 561-567

Brännström, Ake; Boza, Gergely; Colon, Célian; Dieckmann, Ulf; Hochrainer-Stigler, Stefan; Linnerooth-Bayer, Joanne; Pflug, Georg; Poledna, Sebastian; Rovenskaya, Elena; Thurner, Stefan: Modelling, Measuring and Managing Systemic Risk: The Missing Human Agency Aspect. In: Journal of Risk Research. 2018


Pötscher, Benedikt; Leeb, Hannes; Kivaranovic, Danjiel: Discussion of "Model Confidence Bounds for Variable Selection" by Yang Li, Yuetian Luo, Davide Ferrari, Xiaonan Hu, and Yichen Qin. In *Biometrics*. 2018


Gouveia, Luís; Pesneau, Pierre; Ruthmair, Mario; Santos, Daniel: Combining and projecting flow models for the (precedence constrained) asymmetric traveling salesman problem. In: *Networks (New York): an international journal*. 2018; Vol. 71, No. 4. pp. 451-465


Albano, Paolo; Cannarsa, Piermarco; Scarinci, Teresa: Regularity results for the minimum time function with Hörmander vector fields. In: *Journal of Differential Equations*. 2018; Vol. 264, No. 5.


**Contributions to Proceedings and Edited Books**


**Working Papers**

**Birghila, Corina; Pflug, Georg:** Optimal XL-insurance under Wasserstein-type ambiguity. 2018

**Birghila, Corina; Pflug, Georg; Hochrainer-Stigler, Stefan:** Risk layering under ambiguity: an application to farmers exposed to drought risk. 2018

**Geiersbach, Caroline; Pflug, Georg:** Projected Stochastic Gradients for Convex Constrained Problems in Hilbert Spaces. *arXiv.* 2018

**Hautsch, Nikolaus; Scheuch, Christoph; Voigt, Stefan:** Limits to Arbitrage in Markets with Stochastic Settlement Latency. 2018. (Center for Financial Studies; 616).

Eckstein, Stephan; Kupper, Michael; **Pohl, Mathias:** Robust risk aggregation with neural networks. *arXiv.* 2018
## Dissemination of Research

### Presentations at Workshops and Conferences

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<tr>
<th>Name</th>
<th>Conference</th>
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<tr>
<td>Corina Birghila</td>
<td>RISK seminar, Laxenburg, Austria</td>
<td>Risk management under model ambiguity.</td>
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<tr>
<td>Corina Birghila</td>
<td>8th International Conference on Mathematical and Statistical Methods for Actuarial Science and Finance, Madrid, Spain</td>
<td>Robust insurance contracts</td>
</tr>
<tr>
<td>Corina Birghila</td>
<td>Workshop Robust Finance 2018, Freiburg, Germany (Invited Speaker)</td>
<td>Optimal insurance contract under ambiguity. Applications in extreme events.</td>
</tr>
<tr>
<td>Corina Birghila</td>
<td>13th German Probability and Statistics Days, Freiburg, Germany</td>
<td>Design of insurance contract under ambiguity.</td>
</tr>
<tr>
<td>Corina Birghila</td>
<td>Allianz Climate Risk Research Award, Munich, Germany (Invited Speaker)</td>
<td>Insurance under ambiguity</td>
</tr>
<tr>
<td>Corina Birghila</td>
<td>11th Freiburg–Wien–Zürich Seminar, Freiburg, Germany</td>
<td>Tail analysis: a worst-case approach</td>
</tr>
<tr>
<td>Corina Birghila</td>
<td>European Actuarial Journal Conference 2018, Leuven, Belgium</td>
<td>Optimal XL-insurance contract under model uncertainty</td>
</tr>
<tr>
<td>Corina Birghila</td>
<td>Freiburg–Wien–Zürich Workshop, Strobl, Austria</td>
<td>Optimal insurance contract under ambiguity. Applications in extreme events.</td>
</tr>
<tr>
<td>Immanuel Bomze</td>
<td>SPOC18 &quot;Machine Learning, Networks and Combinatorial Optimization&quot;, Paris, France (Invited speaker)</td>
<td>Robust clustering in social networks</td>
</tr>
<tr>
<td>Immanuel Bomze</td>
<td>International Conference on Optimization and Decision Science, Taormina, Italy</td>
<td>Trust your data or not - Standard remains Standard (QP); implications for robust clustering in social networks</td>
</tr>
<tr>
<td>Immanuel Bomze</td>
<td>16th EUROPT Workshop on Advances in Continuous Optimization, Almeria, Spain</td>
<td>Notoriously hard (mixed-)binary QPs: new CP approaches and empirical evidence</td>
</tr>
<tr>
<td>Immanuel Bomze</td>
<td>23rd International Symposium on Mathematical Programming, Bordeaux, France</td>
<td>Active-set identification in Frank-Wolfe variants on the standard simplex</td>
</tr>
</tbody>
</table>
Immanuel Bomze  
NATCOR : Convex Optimization, Edinburgh, England (Keynote speaker)  
Different duals in conic optimization - closure can tighten the duality gap

Immanuel Bomze  
6th Toulouse Economics and Biology Workshop, Toulouse, France (Invited speaker)  
Aiding cognition in complex structures

Immanuel Bomze  
International Conference on Optimization, Irsee, Germany (Keynote speaker)  
Trust your data or not - Standard remains Standard (QP); implications for robust clustering in social networks

Immanuel Bomze  
Workshop on Graph Spectra Combinatorics and Optimization, Aveiro, Portugal  
Robust clustering in social networks

Marek Chudy  
1st Vienna Workshop on Economic Forecasting 2018, Vienna, Austria  
Long-Term Prediction Intervals of Economic Time Series

Daniela Escobar  
Computational Management Science 2018, Trondheim, Norway  
Distortion premium principle: properties, identification and robustness

Daniela Escobar  
29th European conference on Operational Research (EURO XXIX) 2018, Valencia, Spain  
Stochastic dynamic programming for the valuation of a power plant

Daniela Escobar  
Energy and Finance Christmas Workshop, Bolzano, Italy (Invited speaker)  
Identification of distortion functions in power markets

Markus Gabl  
ISMP Conference, Bordeaux, France  
Copositive Approach to Adjustable Robust Optimization with uncertain recourse

Markus Gabl  
29th European Conference on Operational Research, Valencia, Spain  
Copositive Approach to Adjustable Robust Optimization with uncertain recourse

Markus Gabl  
16th EUROPT Workshop on Advances in Continuous Optimization, Almeria, Spain  
Copositive Approach to Adjustable Robust Optimization with uncertain recourse

Caroline Geiersbach  
14th Viennese Conference on Optimal Control and Dynamic Games, Vienna, Austria (Invited Speaker)  
A stochastic gradient algorithm for shape optimization

Caroline Geiersbach  
Oberwolfach Workshop: New Directions in Stochastic Optimisation, Oberwolfach, Germany  
Stochastic Gradients for PDE Constrained Optimization under Uncertainty
<table>
<thead>
<tr>
<th>Name</th>
<th>Event</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caroline Geiersbach</td>
<td>5th European Conference on Computational Optimization, Trier, Germany</td>
<td>Stochastic gradient algorithm for PDE constrained optimization under uncertainty</td>
</tr>
<tr>
<td>Caroline Geiersbach</td>
<td>4th Central European Set-Valued and Variational Analysis Meeting (CESVVAM), Marburg, Germany (Invited Speaker)</td>
<td>A Stochastic Gradient Algorithm for PDE Constrained Optimization under Uncertainty</td>
</tr>
<tr>
<td>Caroline Geiersbach</td>
<td>VWCO Workshop, Vienna, Austria</td>
<td>Shape Optimization for Interface Identification under Uncertainty</td>
</tr>
<tr>
<td>Martin Glanzer</td>
<td>VGSCO Retreat, Neusiedl am See, Austria</td>
<td>Distributionally robust acceptability pricing of contingent claims</td>
</tr>
<tr>
<td>Martin Glanzer</td>
<td>VGSCO Kolloquium WS 2018/19, Vienna, Austria (Invited speaker)</td>
<td>Scenario generation and model ambiguity for multiscale stochastic optimization problems</td>
</tr>
<tr>
<td>Martin Glanzer</td>
<td>10th World Congress of the Bachelier Finance Society, Dublin, Ireland</td>
<td>Incorporating statistical model error into the calculation of acceptability prices of contingent claims.</td>
</tr>
<tr>
<td>Martin Glanzer</td>
<td>Computational Management Science 2018, Trondheim, Norway</td>
<td>A sequential linear programming algorithm to compute distributionally robust acceptable prices of contingent claims.</td>
</tr>
<tr>
<td>Sandor Guzmics</td>
<td>7th Austrian Stochastic Days, Vienna, Austria</td>
<td>Copula orderings in a modified exponential lifetimel model</td>
</tr>
<tr>
<td>Nikolaus Hautsch</td>
<td>Interdisziplinäres Symposium zu Kryptowährungen, Vienna, Austria (Invited Speaker)</td>
<td>Limits to Arbitrage in Markets with Stochastic Latency</td>
</tr>
<tr>
<td>Nikolaus Hautsch</td>
<td>11th Annual Meeting of the Society</td>
<td>Revisiting the Stealth Trading</td>
</tr>
<tr>
<td>Name</td>
<td>Event</td>
<td>Topic</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------------------------------------------------------------------</td>
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<tr>
<td>Nikolaus Hautsch</td>
<td>Conference on Frontiers in High-Frequency Financial Econometrics, Pisa, Italy (Keynote speaker)</td>
<td>Limits to Arbitrage in (Blockchain-Based) Markets with Stochastic Latency</td>
</tr>
<tr>
<td>Nikolaus Hautsch</td>
<td>CUNEF - Colegio Universitario de Estudios Financieros, Madrid Spain (Invited Speaker)</td>
<td>Limits to Arbitrage in (Blockchain-Based) Markets with Stochastic Latency</td>
</tr>
<tr>
<td>Kory Johnson</td>
<td>Workshop in model selection, regularization and interference, Vienna, Austria</td>
<td>Sequential Testing for Inference During Model Selection</td>
</tr>
<tr>
<td>Kory Johnson</td>
<td>Royal Statistical Society 2018 International Conference, Cardiff, Wales (Invited Speaker)</td>
<td>Stopping Stepwise Regression with the Sequential Rejection Principle</td>
</tr>
<tr>
<td>Kory Johnson</td>
<td>Larry Brown Memorial Workshop, Philadelphia, USA</td>
<td>Comment: Exact Post-selection Inference for Sequential Regression Procedures Young Researcher Session</td>
</tr>
<tr>
<td>Kory Johnson</td>
<td>Computational and Methodological Statistics 2018, Pisa, Italy (Invited Speaker)</td>
<td>Revisiting Alpha-Investing: mFDR Control in Polynomial Regression</td>
</tr>
<tr>
<td>Michael Kahr</td>
<td>EURO 2018: 29th European Conference</td>
<td>Robust StQP and community detection in social networks</td>
</tr>
<tr>
<td>Irene Klein</td>
<td>Freiburg-Vienna-Zürich-Seminar, Freiburg, Germany (Invited Speaker)</td>
<td>Two filtrations in insurance</td>
</tr>
<tr>
<td>Hannes Leeb</td>
<td>Workshop Model Selection, Regularization, and Inference, Vienna, Austria</td>
<td>Prediction when fitting simple models to high-dimensional data</td>
</tr>
<tr>
<td>Markus Leitner</td>
<td>OR 2018: International Conference on Operations Research, Brussels, Belgium</td>
<td>The Electric Arc Routing Problem</td>
</tr>
<tr>
<td>Markus Leitner</td>
<td>EURO 2018: 29th European Conference, Valencia, Spain</td>
<td>Using Variables Aggregation and Benders Decomposition for Solving Large-Scale Extended Formulations</td>
</tr>
<tr>
<td>Speaker</td>
<td>Event</td>
<td>Topic</td>
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<tr>
<td>Georg Pflug</td>
<td>Conference on Computational Management Science, Trondheim, Norway</td>
<td>Generation of Scenarios for Multistage Stochastic Optimization</td>
</tr>
<tr>
<td>Georg Pflug</td>
<td>EURO Working Group for Commodities and Financial Modelling, Kaunas, Lithuania (Invited speaker)</td>
<td>Measuring Systemic Risk</td>
</tr>
<tr>
<td>Georg Pflug</td>
<td>Distributionally Robust Optimization, Banff, Canada (Invited speaker)</td>
<td>Distributional Robustness for Multiperiod Stochastic Programs</td>
</tr>
<tr>
<td>Mathias Pohl</td>
<td>ISOR Colloquium, Vienna, Austria (Invited speaker)</td>
<td>Robust risk aggregation with neural networks</td>
</tr>
<tr>
<td>Mathias Pohl</td>
<td>New Directions in Stochastic Optimisation, Oberwolfach, Germany</td>
<td>Ambiguity in stochastic optimization</td>
</tr>
<tr>
<td>Mathias Pohl</td>
<td>Model Uncertainty and Robust Finance: Second Edition, Milan, Italy</td>
<td>A review on ambiguity in stochastic portfolio optimization</td>
</tr>
<tr>
<td>Benedikt Pötscher</td>
<td>A Celebration of Peter Phillips Forty Years at Yale, USA (Invited speaker)</td>
<td>Controlling the Size of Autocorrelation Robust Tests</td>
</tr>
<tr>
<td>Mario Ruthmair</td>
<td>OR 2018: International Conference on Operations Research, Brussels, Belgium</td>
<td>Least Cost Influence Propagation in (Social) Networks</td>
</tr>
<tr>
<td>Mario Ruthmair</td>
<td>EURO 2018: 29th European Conference, Valencia, Spain</td>
<td>Least Cost Influence Propagation in (Social) Networks</td>
</tr>
</tbody>
</table>
Teresa Scarinci
International Workshop Analysis, Control and Inverse Problem on PDEs, Napoli, Italy (Invited speaker) (part of project LIA-COPDESC)
Some results about stability analysis, regularizations and applications to splitting

Teresa Scarinci
14-th International Workshop on Well-Posedness of Optimization Problems and Related Topics, Sofia, Bulgaria
On the Smoothness and the Singular Support of the Minimum Time Function under Bracket-Generating Co

Teresa Scarinci
14th Viennese Conference on Optimal Control and Dynamic Games, Vienna, Austria
Stability analysis for optimal control problems with bang-bang solutions

Teresa Scarinci
On the Regularity and the Singular Support of the Minimum Time Function with Hörmander Vector Fields

Teresa Scarinci
Games, Dynamics and Optimization GDO2018 Conference, Vienna, Austria
On the solutions to a class of subelliptic eikonal equations arising in optimal control

Outside Seminars

<table>
<thead>
<tr>
<th>Institution</th>
<th>Title of Presentation</th>
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</thead>
<tbody>
<tr>
<td>Universidad de La Laguna, Spain (invited)</td>
<td>Robust clustering in social networks</td>
</tr>
<tr>
<td>Università della Calabria, Italy (invited)</td>
<td>First-order methods for the impatient: support identification in finite time with convergent Frank-Wolfe variants</td>
</tr>
<tr>
<td>Technische Universität München (invited)</td>
<td>Trust your data or not - Standard remains Standard (QP); implications for robust clustering in social networks</td>
</tr>
<tr>
<td>Università degli Studi di Padova (invited)</td>
<td>Trust your data or not - Standard remains Standard (QP); implications for robust clustering in social networks</td>
</tr>
<tr>
<td>Università Degli Studi di Siena (invited)</td>
<td>Trust your data or not - Standard</td>
</tr>
</tbody>
</table>
Departmental Seminar (ISOR Colloquium)

January 15

Mikhail Solodov (IMPA Rio de Janeiro)
Newton-Type Methods: A Broader View

remains Standard (QP); implications for robust clustering in social networks

Immanuel Bomze
Università degli Studi di Bergamo (invited)
Trust your data or not - Standard remains Standard (QP); implications for robust clustering in social networks

Nikolaus Hautsch
Karl-Franzens-Universität Graz (invited)
Limits to Arbitrage in (Blockchain-Based) Markets with Stochastic Latency

Nikolaus Hautsch
Erasmus University Rotterdam (invited)
Large Scale Portfolio Allocation Under Transaction Costs and Model Uncertainty

Nikolaus Hautsch
University of Oxford, Great Britain (invited)
Large Scale Portfolio Allocation Under Transaction Costs and Model Uncertainty

Hannes Leeb
Erasmus Research Institute of Management, Netherlands (invited)
Prediction when fitting simple models to high-dimensional data.

Georg Pflug
Humboldt-Universität zu Berlin, Germany (invited)
Stochastic Shape Optimization

Benedikt Pötscher
Université Libre de Bruxelles, Belgium (invited)
Further Results on Size and Power of Autocorrelation Robust Tests, with an Application to Trend Testing

Benedikt Pötscher
Queen Mary University of London, Great Britain (invited)
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

Mathias Pohl
Universität Konstanz, Konstanz, Germany
On the regularity and the singular support of the minimum time function with Hörmander vector fields
<table>
<thead>
<tr>
<th>Date</th>
<th>Speaker</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 22</td>
<td>Jean-Michel Zakoian (CREST, Paris)</td>
<td>Estimation risk for the VaR of portfolios driven by semi-parametric multivariate models (with Christian Francq)</td>
</tr>
<tr>
<td>March 19</td>
<td>Joergen Weibull (HHS Sweden)</td>
<td>On the invariance of the maximum</td>
</tr>
<tr>
<td>April 9</td>
<td>Christoph Rothe (University of Mannheim)</td>
<td>Bounds on Treatment Effects in Regression Discontinuity Designs with a Manipulated Running Variable (with F. Gerard &amp; M. Rokkanen)</td>
</tr>
<tr>
<td>April 16</td>
<td>Yarema Okhrin (Univ. of Augsburg)</td>
<td>Vine-based modelling of (multivariate) realized volatility time series</td>
</tr>
<tr>
<td>April 23</td>
<td>Roberto Cominetti (Univ. A. Ibanez, Santiago de Chile)</td>
<td>Rates of convergence for the Krasnoselskii-Mann fixed point iteration</td>
</tr>
<tr>
<td>May 07</td>
<td>Tobias Harks (Univ. Augsburg)</td>
<td>Sensitivity Analysis for Convex Separable Optimization over Integral Polymatroids</td>
</tr>
<tr>
<td>May 14</td>
<td>Francesco Rinaldi (Univ. Padova)</td>
<td>First order algorithms for constrained optimization problems in Machine Learning</td>
</tr>
<tr>
<td>May 28</td>
<td>Siegfried Hörmann (TU Graz)</td>
<td>On the prediction of stationary functional time series</td>
</tr>
<tr>
<td>June 04</td>
<td>Diethard Klatte (Berlin)</td>
<td>Some Extensions of the Frank-Wolfe Theorem</td>
</tr>
<tr>
<td>June 18</td>
<td>Dick den Hertog (Univ. Tilburg)</td>
<td>Robust Nonlinear Optimization with Convex Uncertainty</td>
</tr>
<tr>
<td>October 1</td>
<td>Moshe Haviv (HU Jerusalem)</td>
<td>Externalities, optimization and regulation in queues</td>
</tr>
<tr>
<td>October 8</td>
<td>Tatiana Tchemisova Cordeiro (Univ.Aveiro)</td>
<td>On phenomenon of Immobility in study of convex Optimization problems (with Olga Kostyukova)</td>
</tr>
<tr>
<td>October 15</td>
<td>Maria Grazia Scutellà (Univ. Pisa)</td>
<td>Robust network optimization against uncertain demands</td>
</tr>
<tr>
<td>October 22</td>
<td>Daniel Wilhelm (UCL)</td>
<td>Testing for the Presence of Measurement Error</td>
</tr>
<tr>
<td>October 29</td>
<td>Alois Kneip (University of Bonn)</td>
<td>On the Optimal Reconstruction of Partially Observed Functional Data</td>
</tr>
<tr>
<td>November 6</td>
<td>René Henrion (WIAS Berlin, Germany)</td>
<td>Probabilistic Constraints in infinite dimensions</td>
</tr>
</tbody>
</table>

November 12     Jakub Marecek (IBM Dublin)  Recommender Systems and their Effects

November 19     Peter Filzmoser (TU Vienna)  Robust estimators of maximum association

December 3      Mathias Pohl (ISOR)  Robust risk aggregation with neural networks (Joint work with Stephan Eckstein and Michael Kupper)

December 10     Damian Kozbur (University of Zurich)  Inference for Dependent Data with Cluster Learning

7  Grants and Externally Funded Research Projects

**Immanuel Bomze** (Project-Coordinator, taken over from Ivana Ljubic in 09/2015)
Research Associates: **Ivana Ljubic**, Christina Büsing, **Markus Leitner**, Mario Ruthmair, Markus Sinnl, Martin Luipersbeck, Georg Brandstätter

Christa Cuchiero (Project-Coordinator), **Irene Klein** (Co-Investigator), Thorsten Schmidt (Co-Investigator)
Research Associate: Lars Niemann

**Nikolaus Hautsch** (Principal Investigator)
Research Associate: **Ilya Archakov**

**Hannes Leeb** (Principal Investigator)
Research Associate: **Ivana Milovic**

**Hannes Leeb** (Principal Investigator)
Research Associate: **Nina Senitschnig**

**Markus Leitner** (Principal Investigator)
Research Associates: **Mario Ruthmair**, Michael Kahr
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), Teresa Scarinci (Scientific Coordinator & post-doc assistant)
Research Associates: Axel Böhm, Marko Djukanovic, Markus Gabl, Caroline Geiersbach, Mathias Horn, Morteza Kimiaei, Stefan Neumann, Dang Khoa Nguyen

Georg Pflug (Project-Coordinator)
Research Associates: Daniela Escobar, Martin Glanzer

C. Pignotti (Project Coordinator), Teresa Scarinci (Co-Investigator)

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

Title: Vienna Graduate School on Computational Optimization (VGSCO)
Funding: FWF
Funding period: 2016-2020

Title: Incorporating Model Error in the Management of Electricity Portfolios
Funding: Université de Paris Sud Mathematique – FMJH
Funding period: 2017-2019

Title: Analysis and control of nonlinear differential models
Funding: INdAM (Italian National Institute of High Mathematics)
Funding period: 2018

Title: Portfolio Risk and Asset Allocation - Utilizing High-Frequency Information in High Dimensions
Funding: WWTF
Funding period: 2015-2019

8 Research Stays at Other Institutions

<table>
<thead>
<tr>
<th>Institution</th>
<th>Weeks</th>
</tr>
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<tbody>
<tr>
<td>Université Paris XIII, France</td>
<td>1</td>
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<tr>
<td>Kraków University of Economics, Poland</td>
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<tr>
<td>Université Paris XI - Paris-Sud</td>
<td>0.5</td>
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<tr>
<td>The University of Chicago, USA</td>
<td>24</td>
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<tr>
<td>EDF R&amp;D, Paris, France</td>
<td>1.5</td>
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<tr>
<td>Regensburg University, Germany</td>
<td>0.5</td>
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</table>
Caroline Geiersbach  
TU Darmstadt, Germany  
0,5

Caroline Geiersbach  
Trier University, Germany  
1

Martin Glanzer  
EDF R&D, Paris, France  
1,5

Markus Leitner  
ESSEC Business School of Paris, France  
1

Markus Leitner  
Université Libre de Bruxelles, Belgium  
1

Markus Leitner  
Universidade de Lisboa, Portugal  
0,5

Georg Pflug  
Università degli studi di Bergamo, Italy  
1

Georg Pflug  
Freie Universität Bozen, Italy  
1

Mario Ruthmair  
ESSEC Business School, France  
0,5

Mario Ruthmair  
Universidade de Lisboa, Portugal  
0,5

Teresa Scarinci  
Institut Fourier, Université Grenoble Alpes – CNRS, France  
0,5

9  Other Faculty Activities

Editorial Work

Immanuel Bomze  Editor
- European Journal of Operational Research

Associate Editor
- Central European Journal of Operations Research

Member of Editorial Board
- Advances in Data Analysis and Classification
- 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*

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  
- Stochastic Programming Electronic Publication Series  
- Statistics and Risk Modeling

Member of Editorial Board  
- Financial Mathematics and Applications

Guest editor  
- Cejor special volume “Modelling and management of commodities and financial markets”

Benedikt M. Pötscher  
Co-Editor of  
- Econometric Theory

Associate Editor of  
- Journal of Statistical Planning and Inference

Refereeing

Immanuel Bomze  
- Linear and Multilinear Algebra  
- Numerical Algorithms  
- Journal of Global Optimization  
- Optimization Letters  
- Journal of Optimization Theory and Applications  
- Mathematics of Operations Research
<table>
<thead>
<tr>
<th>Name</th>
<th>Publications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Martin Glanzer</td>
<td>Central Optimization: a journal of mathematical programming and operations research</td>
</tr>
</tbody>
</table>
| Walter J. Gutjahr  | Annals of Operations Research (1)  
|                    | Central European J. of Operations Research (1)  
|                    | European J. of Operational Research (1)  
|                    | IEEE Trans. on Systems, Man and Cybernetics (1)  
|                    | IIESE Transactions (1)  
|                    | International J. of Disaster Risk Reduction (1)  
|                    | International J. of Logistics (1)  
|                    | International Transactions in Operations Research (1)  
|                    | International Journal of Production Research (1)  
|                    | J. of Humanitarian Logistics and Supply Chain Management (1)  
|                    | OR Spectrum (2)  
|                    | Production and Operations Management (2)  
|                    | Transportation Research Part B (1)  
|                    | Transportation Research Part E (2)  |
| Nikolaus Hautsch   | Econometrica  
|                    | Journal of Applied Econometrics (2)  
|                    | Annals of Statistics  
|                    | Journal of Econometrics (2)  
|                    | DFG  |
| Markus Leitner     | Computers and Operations Research  
|                    | INFORMS Journal on Computing  
|                    | Networks  
|                    | SIAM Journal on Optimization  
|                    | Transportation Research Part B: Methodological  
|                    | Transportation Science  |
| Benedikt M. Pötscher| Econometric Theory  
|                    | Quantitative Economics  |
| Mario Ruthmair     | Transportation Research Part B: Methodological  
|                    | EURO Journal on Transportation and Logistics  
|                    | Discrete Optimization  |

Reviewer for Workshops
| 5th Annual conference of the International Association of Applied Econometrics (Montreal, Canada) |
| Finance Down Under Conference (Melbourne, Australia) |
| 11th Annual Society for Financial Econometrics (SoFiE) (Lugano, Switzerland) |

Irene Klein
| Finance & Stochastics (1)  
| Mathematics and Financial Economics (1)  
| Stochastic processes and their applications (1)  |

Markus Leitner
| Computers and Operations Research  
| INFORMS Journal on Computing  
| Networks  
| SIAM Journal on Optimization  
| Transportation Research Part B: Methodological  
| Transportation Science  |

Benedikt M. Pötscher
| Econometric Theory  
| Quantitative Economics  |

Mario Ruthmair
| Transportation Research Part B: Methodological  
| EURO Journal on Transportation and Logistics  
| Discrete Optimization  |

Reviewer for Conferences
Other Professional Activities

Immanuel Bomze
- Deputy Director of Studies Program Statistics, University of Vienna, Austria (1.10.2018– 31.12.2018)
- Director of Studies PhD Program, University of Vienna, Austria (1.1.2018-30.09.2018)
- Organizer of the Vienna Graduate School on Computational Optimization 17.12.-19.12.2018
- EURO President Elect

Walter J. Gutjahr
- Program Committee Member EvoCOP 2018
- Panel Chair at Workshop on Optimization, Game Theory, and Data Analysis, Vienna Austria

Nikolaus Hautsch
- Dean of the Faculty
- Interim Head of Department of Business Administration
- Scientific Advisory Board Forschungsdateninfrastruktur für Finanzdaten, SAFE Frankfurt
- Deputy Head of Research Platform „Data Science @ Uni Vienna”

Irene Klein
- Co-Organizer Freiburg-Vienna-Zurich-Workshop, Strobl, Austria 01.-07-04.07.2018
- Co-Organizer Freiburg-Vienna-Zurich-Seminar, Vienna, Austria, 03.10.-05.10.2018
- Co-Organizer Workshop on Optimization, Game Theory and Data Analysis, Vienna, Austria, 20.12.-21.12.2018

Hannes Leeb
- Co-organizer of Workshop “Model Selection, Regularization and Inference”

Markus Leitner
- Co-Organizer Workshop on Optimization, Game Theory and Data Analysis, Vienna, Austria, 20.12.-21.12.2018

Georg Pflug
- Speaker of the Vienna Graduate School on Computational Optimization
- Director of Studies PhD Program, University of Vienna, Austria
- Member FWF-Kuratorium (Applied Mathematics)
- Scientific Advisory Board Member at IMPA - Instituto Nacional de Matemática Pura e Aplicada, Brasil
- Co-organizer of the Oberwolfach conference “New directions in stochastic optimization” 19.08.-24.08.2018
- Organizer of the Vienna Graduate School on Computational Optimization 17.12.-19.12.2018
- Member of the panel for a transregio research theme of the German Forschungsgemeinschaft DFG
- External reviewer of a PHD Thesis for Islamabad U, Pakistan
- External member of a PHD committee in HEC, Montreal, Canada
- Member of a Habilitation Committee in Paris, France
- External reviewer of a habilitation thesis at the University of Singapore
- Member of a Habilitation Committee at the University of St. Gallen, Switzerland

Benedikt M. Pötscher
- Co-organizer of Workshop “Model Selection, Regularization and Inference”
- Head of Department: Statistics and Operations Research

Erhard Reschenhofer
- Vice Directorate of Studies Program Statistics (University of Vienna)
- Deputy Head of Department: Statistics and Operations Research

Mario Ruthmair
- Co-organizer of the Workshop on Optimization, Game Theory, and Data Analysis, Vienna, Austria, 20.12.-21.12.2018

Werner Schachinger
- Co-organizer of the Workshop on Optimization, Game Theory, and Data Analysis, Vienna, Austria, 20.12.-21.12.2018