

Welcome to MCQMC 2024 TO BE UPDATED

We are delighted to welcome you to Linz for the *15th International Conference on Monte Carlo and Quasi-Monte Carlo Methods in Scientific Computing*. The MCQMC conference series is, together with its sister conference series, the conferences on Monte Carlo Methods (MCM), a major event for researchers in the Monte Carlo and quasi-Monte Carlo community. We are glad to host MCQMC in Austria for the second time.

As of July 14, MCQMC 2022 features 190 talks, among them nine plenary talks and two tutorials, and 28 special sessions. The speakers come from a variety of scientific backgrounds, countries, institutions and stages of their career. We hope that, after two long years with hardly any offline meetings, you will again have the opportunity to meet colleagues, establish new contacts, and get new ideas from this meeting by talking with your fellow participants. If so, this conference will have been a success.

We are aware that organizing MCQMC 2022 as one of the first on-site events after the pandemic has been a certain risk, and that some of the participants would have preferred an online or hybrid event for various reasons. Nevertheless, we are convinced that personal meetings with colleagues are essential for progress in science and for fruitful collaborations, which is why the organizing team of MCQMC 2022 has made this decision.

Located on the river Danube, about halfway between Salzburg and Vienna, Linz is the third-largest city in Austria, and a vibrant place that offers an interesting mix of architecture, culture, technology, and nature. We invite you to explore and enjoy summer in Linz.

We wish you a pleasant, productive, and interesting stay at MCQMC 2022!

Christiane Lemieux, Ben Feng, Nathan Kirk, and Adam Kolkiewicz
MCQMC 2024 Conference Organizers

Credits to support staff like Greg, Carla, Lucy, and Carlos. Do we call that the support team or something?

Conference website: <https://uwaterloo.ca/sas/mcqmc-2024>

Conference email: mcqmc.2024@uwaterloo.ca

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About MCQMC TO BE UPDATED.

History

The MCQMC Conference is a biennial meeting devoted to the study of Monte Carlo (MC) and quasi-Monte Carlo (QMC) methods, the relationships between the two classes of methods, and their effective application in different areas. The conference has attracted more and more participants during the last years. Its aim is to provide a forum where leading researchers and users can exchange information on the latest theoretical developments and important applications of these methods. The conference focuses primarily on the mathematical study of these techniques, their implementation and adaptation for concrete applications, and their empirical assessment.

The conference was initiated by Harald Niederreiter, who co-chaired the first seven conferences of the series. From 2006 onwards, the MCQMC Steering Committee has overseen the continuation of the conference series.

The previous instances of MCQMC were held in:

1. Las Vegas, USA (1994),
2. Salzburg, Austria (1996),
3. Claremont, USA (1998),
4. Hong Kong (2000),
5. Singapore (2002),
6. Juan-Les-Pins, France (2004),
7. Ulm, Germany (2006),
8. Montreal, Canada (2008),
9. Warsaw, Poland (2010),
10. Sydney, Australia (2012),
11. Leuven, Belgium (2014),
12. Stanford, USA (2016),
13. Rennes, France (2018),
14. Oxford, UK (2020, virtually).
15. Linz, Austria (2022).

MCQMC 2024 marks the thirty year anniversary of the first MCQMC conference held in 1994. To celebrate this milestone, the organizing committee of MCQMC 2024 are excited to present a special panel session, followed by a Q&A. The panel members consist of Art Owen, Fred Hickernell, Frances Kuo, Alexander Keller and Josef Dick and the session will be moderated by Aretha Teckentrup. The motivation and purpose of this special event is to reflect on the past thirty years of progress in the field of MC and QMC methods and perhaps more importantly, to look ahead to what the big questions might reveal in the next 30 years and beyond.

Steering Committee

Josef Dick (Australia)

Fred J. Hickernell (USA)

Alexander Keller (Germany, Chair)

Peter Kritzer (Austria)

Pierre L'Ecuyer (Canada)

Christiane Lemieux (Canada)

Art B. Owen (USA)

Scientific committee

Christoph Aistleitner (Graz University of Technology, Austria)

Andrea Barth (University of Stuttgart, Germany)

Hector Cancela (University of the Republic, Uruguay)

Frédéric Cérou (INRIA, France)

Nicolas Chopin (ENSAE, IPP, France)

Ronald Cools (KU Leuven, Belgium)

Josef Dick (UNSW, Australia)

Mike Giles (Mathematical Institute, University of Oxford, UK)

Paul Glasserman (Columbia University, USA)

Michael Gnewuch (University of Osnabrück, Germany)

Takashi Goda (University of Tokyo, Japan)

Stefan Heinrich (RPTU Kaiserslautern-Landau, Germany)

Fred J. Hickernell (Illinois Institute of Technology, USA)

Alexander Keller (NVIDIA, Germany)

Peter Kritzer (RICAM, Austrian Academy of Sciences, Austria)

Dirk Kroese (University of Queensland, Australia)

Frances Kuo (UNSW, Australia)

Gerhard Larcher (JKU Linz, Austria)

Christian Lécot (Université Savoie Mont-Blanc, France)

Pierre L'Ecuyer (University of Montreal, Canada)

Faming Liang (Purdue University, USA)

Eric Moulines (École Polytechnique, France)

Thomas Müller-Gronbach (University of Passau, Germany)

Harald Niederreiter (RICAM, Austrian Academy of Sciences, Austria)

Erich Novak (FSU Jena, Germany)

Art Owen (Stanford University, USA)

Gilles Pagès (Sorbonne Université, France)

Friedrich Pillichshammer (JKU Linz, Austria)

Michael Pitt (King's College London, UK)

Sebastian Reich (University of Potsdam, Germany)

Klaus Ritter (Fachbereich Mathematik, TU Kaiserslautern, Germany)

Gerardo Rubino (INRIA, France)

Claudia Schillings (Free University Berlin, Germany)

Wolfgang Schmid (Paris Lodron University of Salzburg, Austria)

Ian H. Sloan (UNSW, Australia)

Aretha Teckentrup (University of Edinburgh, UK)

Bruno Tuffin (INRIA, France)

Mario Ullrich (JKU Linz, Austria)

Arne Winterhof (RICAM, Austrian Academy of Sciences, Austria)

Local Organizers

Christiane Lemieux, Ben Feng, Nathan Kirk, Adam Kolkiewicz

Local Technical and Support Team

Greg Preston, Carla Daniels, Carlos Mendes, Lucy Simpson anyone else? name order?

Sponsors

Add logos

Fields Institute for Research in Mathematical Sciences

<http://www.fields.utoronto.ca>

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<https://www.rbcroyalbank.com>

Faculty of Mathematics, University of Waterloo

<https://uwaterloo.ca/math>

Department of Statistics and Actuarial Science, University of Waterloo

<https://uwaterloo.ca/statistics-and-actuarial-science>

Special Thanks to be updated

The conference organizers would like to thank all sponsors for making this event possible. We also want to express our gratitude towards Professor Gerhard Larcher (Head of the Department of Financial Mathematics and Applied Number Theory at JKU Linz) and Professor Ronny Ramlau (Head of RICAM at the Austrian Academy of Sciences) for their support to host this conference at our institutions.

We are also very grateful to many colleagues at JKU Linz and the Austrian Academy of Sciences for their help and support during various planning stages of the conference, including Gabi Danter, Simon Eder, Renata Fleischner, Manuel Forster, Wolfgang Forsthuber, Louisa Hofmann, Johannes Thuswaldner, Florian Tischler, Melanie Traxler, Sandra Winzer, and Sarah Wolfsegger.

We wish to extend our thanks to the entire Steering Committee and Program Committee, and past MCQMC conference organizers for their contribution and support. We also thank our plenary speakers, tutorial speakers, special session organizers, and all session chairs for their help and support with the scientific organisation of the conference.

Last but not least, we are extremely grateful to many friends in the MCQMC community who helped us in various ways to organize MCQMC 2022, in particular Mike Giles, Takashi Goda, Fred J. Hickernell, Frances Y. Kuo, Christiane Lemieux, and Art B. Owen.

Schedule

August 18th, 2024			
13:30 – 16:00	Registration – Hall B (outside Lecture Hall 1)		
14:15 – 15:45	SOME LOCATION		
	Tutorial		
	<i>Peter Frazier</i>		
	SOME TITLE	p. 16	
	Chair: <i>SOME CHAIR</i>		
15:45 – 16:00	Coffee break – SOMEWHERE		
14:15 – 15:45	SOME LOCATION		
	Tutorial		
	<i>Fred J. Hickernell</i>		
	SOME TITLE	p. 17	
	Chair: <i>SOME CHAIR</i>		

Monday, July 18, 2022 – Morning I

08:00 – 12:30	Registration – Hall B (outside Lecture Hall 1)
08:45 – 09:00	Opening Ceremony – Lecture Hall 1
09:00 – 10:00	SOME LOCATION
	Plenary Talk
	<i>Frances Y. Kuo</i>
	SOME TITLE p. 20
	Chair: <i>SOME CHAIR</i>
08:00 – 12:30	Registration – Hall B (outside Lecture Hall 1)

Monday, July 18, 2022 – Morning II

Lecture Hall 1 Special Session <i>Thomas Müller-Gronbach</i>	Lecture Hall 3 Special Session <i>Damir Ferizović and Michelle Mastrianni</i>	Lecture Hall 4 Special Session <i>Vivekananda Roy</i>	Lecture Hall 5 Special Session <i>Fred J. Hickernell</i>	Lecture Hall 6 Technical Session <i>Philipp Guth</i>
Stochastic Computation and Complexity: Quadrature for SDEs and SPDEs, Stochastic Optimization, Neural Networks, Part 1 of 2 p. ?? Chair: <i>Thomas Müller-Gronbach</i>	Quantifying Notions of Equidistribution on the Sphere p. ?? Chair: <i>Damir Ferizović</i>	Developments in Markov Chain Monte Carlo p. ?? Chair: <i>Vivekananda Roy</i>	Developments in and Applications of MCQMC Software, Part 1 of 2 p. ?? Chair: <i>Dirk Nuyens</i>	
10:30 – 11:00	<i>Steffen Dereich</i> Optimal shallow networks p. ??	<i>Fátima Lizarte</i> Lower bounds for the logarithmic energy on \mathbb{S}^2 and for the Green energy on \mathbb{S}^n p. ??	<i>Alain Durmus</i> The Kick-Kac teleportation algorithm: boost your favorite Markov Chain Monte Carlo using Kac formula p. ??	<i>Mike Giles</i> Progress on MATLAB and C/C++ implementations of an MLMC package p. ??
11:00 – 11:30	<i>Monika Eisenmann</i> Randomized operator splitting schemes for abstract evolution equations p. ??	<i>Jordi Marzo</i> QMC designs and random point configurations p. ??	<i>James M. Flegal</i> Lugsail lag windows for estimating time-average covariance matrices p. ??	<i>Pierre L'Ecuyer</i> An update on Lattice Tester, LatMRG, and Lattice Builder p. ??
12:30 – 14:00	Lunch			<i>Mark Huber</i> Improved Bernoulli mean estimation for Monte Carlo data p. ??

Monday, July 18, 2022 – Morning III

	Lecture Hall 1 Special Session <i>Thomas Müller-Gronbach</i> Stochastic Computation and Complexity: Quadrature for SDEs and SPDEs, Stochastic Optimization, Neural Networks, Part 1 of 2 p. ?? Chair: <i>Thomas Müller-Gronbach</i>	Lecture Hall 3 Special Session <i>Damir Ferizović and Michelle Mastrianni</i> Quantifying Notions of Equidistribution on the Sphere p. ?? Chair: <i>Damir Ferizović</i>	Lecture Hall 4 Special Session <i>Vivekananda Roy</i> Developments in and Markov Chain Monte Carlo p. ?? Chair: <i>Vivekananda Roy</i>	Lecture Hall 5 Special Session <i>Fred J. Hickernell</i> Developments in and Applications of MCQMC Software, Part 1 of 2 p. ?? Chair: <i>Dirk Nuyens</i>	Lecture Hall 6 Technical Session Chair: <i>Philipp Guth</i>
11:30 – 12:00	<i>Sotirios Sabanis</i> Recent advances of Euler-Krylov's polygonal approximations in ML and AI p. ??	<i>Michelle Mastrianni</i> The spherical cap discrepancy of HEALPix points p. ??	<i>Leah F. South</i> Monte Carlo variance reduction using Stein operators p. ??	<i>Fred J. Hickernell</i> Challenges in developing great MCQMC software p. ??	<i>Marcin Wnuk</i> Which problems can be solved by randomized algorithms? p. ??
12:00 – 12:30			<i>Andrej Srakar</i> Approximate Bayesian algorithm for tensor robust principal component analysis p. ??	<i>Loïs Paulin</i> Generator matrices by solving integer linear programs p. ??	<i>Bruno Tuffin</i> Randomized quasi-Monte Carlo methods: Central limit theorem and confidence interval p. ??
12:30 – 14:00	Lunch				

Friday, July 22, 2022 – Morning II

	Lecture Hall 1 Special Session <i>Alexander D. Gilbert and Florian Puchhammer</i>	Lecture Hall 3 Special Session <i>Gunther Leobacher</i>	Lecture Hall 4 Special Session <i>Michael Gnewuch and Florian Pausinger</i>	Lecture Hall 5 Special Session <i>László Mérai</i>	Lecture Hall 6 Technical Session Chair: <i>Kosuke Suzuki</i>
	Smoothing and Adaptive Methods, Part 2 of 2 p. ?? Chair: <i>Alexander D. Gilbert</i>	Analysis and Simulation of SDEs in Non-Standard Settings p. ?? Chair: <i>Gunther Leobacher</i>	Random Points: Generation, Quality Criteria, and Applications p. ?? Chair: <i>Michael Gnewuch</i>	Pseudo-Random Number Generation p. ?? Chair: <i>László Mérai</i>	
10:00 – 10:30	<i>Simon Weissman</i> A multilevel subset simulation for estimating rare events via shaking transformations p. ??	<i>Christoph Reisinger</i> Convergence of a time-stepping scheme to the free boundary in the supercooled Stefan problem p. ??	<i>Julian Hofstädler</i> Consistency of randomized integration points p. ??	<i>Pierre Popoli</i> Maximum order complexity for some automatic and morphic sequences along polynomial values p. ??	<i>Alessandro Mastroiato</i> AdaSmooth: a fast and stable SMC algorithm for online additive smoothing p. ??
10:30 – 11:00		<i>Alexander Steinicke</i> From numerical schemes for SDEs to analysis of Lipschitz maps p. ??	<i>Markus Kiderlen</i> Stratified and jittered sampling in discrepancy theory p. ??	<i>Arne Winterhof</i> Pseudorandom sequences derived from automatic sequences p. ??	<i>Christian Weiß</i> Covering numbers by intervals and equidistribution theory p. ??
11:00 – 11:30	Coffee break – Halls B and C				
09:00 – 10:00	SOME LOCATION Plenary Talk <i>Frances Y. Kuo</i> SOME TITLE p. 26 Chair: <i>SOME CHAIR</i>				
12:30 – 12:35	Closing Remarks – Lecture Hall 1				

Sunday Tutorials

Sunday, Aug 18, 2024, 14:15 – 15:45, XXX Location 1



Peter Frazier's Tutorial

Peter Frazier
Cornell University
pf98@cornell.edu

Abstract to be placed here.

Sunday, Aug 18, 2024, 16:00 – 17:30, XXX Location 1



SOME TITLE

Fred J. Hickernell
Illinois Institute of Technology
hickernell@iit.edu

Abstracts to be added.

Plenary Talks

Monday, August 19, 2024, 14:00 – 15:00, Lecture Hall 1

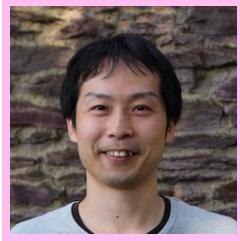


SOME TITLE

Gersende Fort
CNRS Toulouse, France
gersende.fort@math.univ-toulouse.fr

Abstract to be added here.

Wednesday, July 20, 2022, 09:00 – 10:00, Lecture Hall 1



SOME TITLE

Takashi Goda

University of Tokyo, Japan

???Needtocheckemailandphoto

Abstract to be added here.

Wednesday, July 20, 2022, 09:00 – 10:00, Lecture Hall 1



SOME TITLE

David Krieg
JKU, Austria
david.krieg@jku.at

Abstract to be added here.

Wednesday, July 20, 2022, 09:00 – 10:00, Lecture Hall 1



SOME TITLE

Frances Kuo

University of New South Wales, Australia

f.kuo@unsw.edu.au

Abstract to be added here.

Thursday, July 21, 2022, 14:00 – 15:00, Lecture Hall 1



SOME TITLE

Henry Lam
Columbia University, USA
khl2114@columbia.edu

Abstract to be added here.

Wednesday, July 20, 2022, 09:00 – 10:00, Lecture Hall 1



SOME TITLE

Chris Oates
Newcastle University, UK
???Needtocheckemailandphoto

Abstract to be added here.

Wednesday, July 20, 2022, 09:00 – 10:00, Lecture Hall 1



SOME TITLE

Mariana Olvera-Cravioto
UNC-Chapel Hill, USA
molvera@email.unc.edu

Abstract to be added here.

Wednesday, July 20, 2022, 09:00 – 10:00, Lecture Hall 1



SOME TITLE

Art Owen
Stanford University, USA
owen@stanford.edu

Abstract to be added here.

Special Sessions

Special Session 01. MCMC: Convergence and Robustness

Organizers:

Alex Shestopaloff

Queen Mary University of London

a.shestopaloff@qmul.ac.uk

Jun Yang

University of Copenhagen

jy@math.ku.dk

Session Description:

As Markov Chain Monte Carlo (MCMC) methods become more complex, a deeper understanding of their convergence and performance guarantees in realistic scenarios becomes an important aspect of using these methods in computational Bayesian statistics. This session aims to further this understanding by focusing on the convergence and robustness of complex MCMC samplers, covering recent work on topics such as convergence of hybrid Gibbs sampling [1], novel methods for evaluation of convergence rates using random number simulations [2] the study of convergence with Dirichlet forms [3] as well as techniques for making MCMC samplers more robust and a study of their corresponding convergence properties, such as [4].

- [1] Qian Qin, Nianqiao Ju, Guanyang Wang (2023). Spectral gap bounds for reversible hybrid Gibbs chains. arXiv:2312.12782.
- [2] Sabrina Sixta and Jeffrey S. Rosenthal (2023). Bounding and estimating MCMC convergence rates using common random number simulations. arXiv:2309.15735.
- [3] Ning Ning (2022). Convergence of Dirichlet Forms for MCMC Optimal Scaling with General Target Distributions on Large Graphs. arXiv:2210.17042.
- [4] Michael C.H. Choi (2020). Improved Metropolis-Hastings algorithms via landscape modification with applications to simulated annealing and the Curie-Weiss model. arXiv: 2011:09680.

Thursday, July 21, 2022, 10:30 – 12:30, Lecture Hall 4

Michael Choi, National University of Singapore, Department of Statistics and Data Science
 TITLE 1 p. ??

Nianqiao (Phyllis) Ju, Purdue University, Department of Statistics
 TITLE 2 p. ??

Ning (Patricia) Ning, Texas A&M University, Department of Statistics
 TITLE 3 p. ??

Sabrina Sixta, University of Toronto, Department of Statistics
 TITLE 4 p. ??

Special Session 02. Learning to Solve Related Integrals

Organizer:

Chris. J. Oates
Newcastle University, UK
chris.oates@ncl.ac.uk

Session Description:

The standard perspective on numerical analysis deals with solving individual numerical tasks, but in practice the experience gained from using numerical methods to solve related problems provides valuable insight into their performance, which can shape how and when numerical methods are used. Developments at the intersection of probability, statistics, and numerical analysis seek to leverage experience to improve performance on subsequent numerical tasks as they are encountered. This session will shine a light on emerging methodology for the solution of related integration problems, arising in areas of research that include sensitivity analysis, computational finance, the solution of partial differential equations, decision-making under uncertainty, and diffusion-based generative modelling. François-Xavier Briol from University College London will present a probabilistic approach to estimating related conditional expectations, which operates by sharing statistical information regarding the integrand. Jon Cockayne from the University of Southampton will present a novel statistical approach to solving related linear systems of equations, such as occur when integrating a partial differential equation that is parameter-dependent. Zheyang Shen from Newcastle University will present a novel perspective on diffusion-based generative modelling, which casts the problem of generating realistic image data as the estimation of related kernel mean embeddings in a reproducing kernel Hilbert space framework.

Thursday, July 21, 2022, 10:30 – 12:30, Lecture Hall 4

SPEAKER 1

TITLE 1 p. ??

SPEAKER 2

TITLE 2 p. ??

SPEAKER 3

TITLE 3 p. ??

Special Session 03. Stochastic Computation and Complexity, Part I: SDEs, Stochastic Optimization and Neural Networks

Organizer:

Thomas Müller-Gronbach

University of Passau

Thomas.Mueller-Gronbach@uni-passau.de

Session Description:

The session is devoted to algorithms and complexity for

- quadrature and strong approximation of SDEs and SPDEs, in particular under non-standard assumptions,
- high and infinite dimensional integration and approximation, and
- stochastic optimization and neural networks,

including connections to functional analysis and stochastic analysis.

Thursday, July 21, 2022, 10:30 – 12:30, Lecture Hall 4

Pawel Przybylowicz, AGH University, Krakow

TITLE 1 p. ??

Sotirios Sabanis, University of Edinburgh

TITLE 2 p. ??

Steffen Dereich, University of Münster

TITLE 3 p. ??

Special Session 04. Stochastic Computation and Complexity, Part II: Approximation of SDEs Under Non-Standard Assumptions

Organizer:

Stefan Heinrich

RPTU Kaiserslautern-Landau

heinrich@informatik.uni-kl.de

Session Description:

The session is devoted to algorithms and complexity for

- quadrature and strong approximation of SDEs and SPDEs, in particular under non-standard assumptions,
- high and infinite dimensional integration and approximation, and
- stochastic optimization and neural networks,

including connections to functional analysis and stochastic analysis.

Thursday, July 21, 2022, 10:30 – 12:30, Lecture Hall 4

Simon Ellinger, University of Passau

TITLE 1 p. ??

Lukasz Stepień, AGH University Krakow

TITLE 2 p. ??

Larisa Yaroslavtseva, University of Graz

TITLE 3 p. ??

Special Session 05. Stochastic Computation and Complexity, Part III: Approximation of SDEs Under Non-Standard Assumptions

Organizer:

Thomas Müller-Gronbach

University of Passau

Thomas.Mueller-Gronbach@uni-passau.de

Session Description:

The session is devoted to algorithms and complexity for

- quadrature and strong approximation of SDEs and SPDEs, in particular under non-standard assumptions,
- high and infinite dimensional integration and approximation, and
- stochastic optimization and neural networks,

including connections to functional analysis and stochastic analysis.

Thursday, July 21, 2022, 10:30 – 12:30, Lecture Hall 4

Christopher Rauhögger, University of Passau

TITLE 1 p. ??

Andre Herzwurm, TH Rosenheim

TITLE 2 p. ??

Tomasz Bochacik, AGH University, Krakow

TITLE 3 p. ??

Special Session 06. Stochastic Computation and Complexity, Part IV: High Dimensional Approximation and Integration

Organizer:

Larisa Yaroslavtseva

University of Graz

larisa.yaroslavtseva@uni-graz.at

Session Description:

The session is devoted to algorithms and complexity for

- quadrature and strong approximation of SDEs and SPDEs, in particular under non-standard assumptions,
- high and infinite dimensional integration and approximation, and
- stochastic optimization and neural networks,

including connections to functional analysis and stochastic analysis.

Thursday, July 21, 2022, 10:30 – 12:30, Lecture Hall 4

Thomas Kühn, University of Leipzig

TITLE 1 p. ??

Daniel Rudolf, University of Passau

TITLE 2 p. ??

Kateryna Pozhariska, Ukrainian Academy of Sciences, Kiev, and University of Chemnitz

TITLE 3 p. ??

Stefan Heinrich, RPTU Kaiserslautern-Landau

TITLE 4 p. ??

Special Session 07. Function Recovery and Discretization Problems

Organizers:

David Krieg

Institute of Analysis, Johannes Kepler University Linz, Austria

david.krieg@jku.at

Kateryna Pozharska

Institute of Mathematics of NAS of Ukraine, Kyiv, Ukraine;

Faculty of Mathematics, Chemnitz University of Technology, Germany

pozharska.k@gmail.com

Session Description:

In this session, we would like to bring together experts who contributed to the theory of function recovery and related problems. Recently, there has been much progress in understanding the power of different types of information (function values vs. linear measurements, optimal vs. random) as well as different classes of algorithms (linear vs. nonlinear, random vs. deterministic, adaptive vs. nonadaptive), but also with regard to the error analysis for specific recovery schemes. The session is concerned with these new developments, which also include the impact of a large dimension, discretization in function spaces and modern methods in data science.

Part 1

Thursday, July 21, 2022, 10:30 – 12:30, Lecture Hall 4

Ben Adcock, Simon Fraser University

TITLE 1 p. ??

Ayoub Belhadji, ENS de Lyon

TITLE 2 p. ??

Thomas Jahn, Katholische Universität Eichstätt-Ingolstadt

TITLE 3 p. ??

Thomas Kühn, Universität Leipzig

TITLE 4 p. ??

Part 2

Thursday, July 21, 2022, 10:30 – 12:30, Lecture Hall 4

Winfried Sickel, Friedrich-Schiller-University Jena

TITLE 1 p. ??

Mathias Sonnleitner, University of Passau

TITLE 2 p. ??

Fabian Taubert, Chemnitz University of Technology

TITLE 3 p. ??

Tino Ullrich, Chemnitz University of Technology

TITLE 4 p. ??

Special Session 08. Universality in QMC and Related Algorithms

Organizer:

Peter Kritzer

RICAM, Austrian Academy of Sciences

peter.kritzer@oeaw.ac.at

Session Description:

In the literature on QMC and related methods, it is often the case that one can tailor an algorithm to a specific problem, usually depending on a certain (fixed) choice of problem parameters such as smoothness parameters or coordinate weights. This may have the advantage that one obtains an excellent algorithm for this particular problem, but the obvious downside is that it is not clear whether the same algorithm could be applied in other settings, e.g., when some of the parameters change. There have been recent attempts to make QMC and related algorithms more universal, and a number of interesting open questions remain. This special session brings together four speakers who have recently contributed to this aspect of multivariate algorithms.

Thursday, July 21, 2022, 10:30 – 12:30, Lecture Hall 4

Josef Dick, University of New South Wales (Australia)

TITLE 1 p. ??

Fred J. Hickernell, Illinois Institute of Technology (USA)

TITLE 2 p. ??

Kosuke Suzuki, Yamagata University (Japan)

TITLE 3 p. ??

Laurence Wilkes, KU Leuven (Belgium)

TITLE 4 p. ??

Special Session 09. Efficient Bayesian Surrogate Modeling

Organizers:

Aleksei Sorokin

Illinois Institute of Technology

asorokin@hawk.iit.edu

Pieterjan Robbe

Sandia National Laboratories

pmrobbe@sandia.gov

Session Description:

Common tasks in stochastic modeling include model calibration and sensitivity analysis. These tasks typically require many model evaluations, which can be prohibitively expensive in case model evaluations are costly. This has motivated the development of surrogate models, which are fit offline on a limited budget and then enable rapid online evaluations for predictive purposes. An important decision is where to evaluate the model in order to maximize information captured by the surrogate. While Monte Carlo points are a conventional choice, their independent nature often leads to sampling in locations of little value to the surrogate. In contrast, dependent structures, such as quasi-random (low discrepancy) points or Bayesian optimal experimental designs, have proven to produce more reliable surrogate models. This session will discuss some of the recent developments in these sampling techniques, and will bring together researchers from both communities to explore collaborations.

Part 1

Thursday, July 21, 2022, 10:30 – 12:30, Lecture Hall 4

Pieterjan Robbe (Sandia National Laboratories, pmrobbe@sandia.gov)

Efficient Surrogate Construction for Response Surfaces With Steep Gradients p. ??

Michael McCourt (Distributional, michael@distributional.com)

Constraint Active Search as an Alternative to Multiobjective Optimization p. ??

John Miller (Duke University, jjm103@duke.edu)

Diverse Expected Improvement (DEI): Diverse Optimization of Expensive Black-Box Simulators for Internal Combustion Engine Control p. ??

Part 2

Thursday, July 21, 2022, 10:30 – 12:30, Lecture Hall 4

Aleksei Sorokin (Illinois Institute of Technology, asorokin@hawk.iit.edu)

Fast Gaussian Process Regression With Derivative Information Using Lattice and Digital Sequences p. ??

Xun Huan (University of Michigan, xhuan@umich.edu)

Bayesian Optimal Experimental Design for Surrogate Model Building p. ??

Vishwas Rao (Argonne National Laboratory, vhebbur@anl.gov)

Rare Events and Their Optimization p. ??

Special Session 10. Kernel Approximation and Cubature

Organizers:

Vesa Kaarnioja
University of Potsdam
vesa.kaarnioja@iki.fi

Ilja Klebanov
Free University of Berlin
klebanov@zedat.fu-berlin.de

Session Description:

Reproducing kernel Hilbert spaces (RKHSs) are very amenable to the development of efficient approximation and cubature methods. To this end, there has been a surge of interest in recent years regarding some of the advantages that kernel-based methods can offer in applications involving collocation over Monte Carlo or quasi-Monte Carlo point sets—some examples include, e.g., Gaussian process regression (kriging), Bayesian neural networks or uncertainty quantification for partial differential equations. This minisymposium showcases some recent theoretical and computational developments in the study of kernel-based approximation and cubature methods.

Part 1

Thursday, July 21, 2022, 10:30 – 12:30, Lecture Hall 4

Ian Sloan, UNSW Sydney

TITLE 1 p. ??

Robert Gruhlke, Free University of Berlin

TITLE 2 p. ??

Chris Oates, Newcastle University

TITLE 3 p. ??

Ilja Klebanov, Free University of Berlin

TITLE 4 p. ??

Part 2

Thursday, July 21, 2022, 16:30 – 18:00, Lecture Hall 4

Dirk Nuyens, KU Leuven

TITLE 1 p. ??

Abirami Srikumar, UNSW Sydney

TITLE 2 p. ??

Laura Bazahica, LUT University

TITLE 3 p. ??

André-Alexander Zepernick, Free University of Berlin

TITLE 4 p. ??

Special Session 11. Optimization Under Uncertainty

Organizers:

Philipp A. Guth
RICAM, Austrian Academy of Sciences
philipp.guth@ricam.oeaw.ac.at

Vesa Kaarnioja
University of Potsdam
vesa.kaarnioja@iki.fi

Claudia Schillings
Free University of Berlin
c.schillings@fu-berlin.de

Session Description:

Large-scale optimization problems based on partial differential equation models typically involve a number of uncertainties: for example, the material parameters, domain shape or sensor locations used to collect the measurements may not be perfectly known. The quantification of these uncertainties leads to challenging high-dimensional integration problems, which can be tackled efficiently using, e.g., multilevel Monte Carlo or quasi-Monte Carlo methods. The intersection of optimization and uncertainty quantification is an actively developing field of research, and this session aims to cover some recent advances in the computational and theoretical treatment of these topics.

Thursday, July 21, 2022, 10:30 – 12:30, Lecture Hall 4

Philipp Guth, RICAM, Austrian Academy of Sciences
TITLE 1 p. ??

Helmut Harbrecht, University of Basel
TITLE 2 p. ??

Andrea Barth, University of Stuttgart
TITLE 3 p. ??

Arved Bartuska, RWTH Aachen
TITLE 4 p. ??

Special Session 12. Recent Advances in QMC Methods for Computational Finance and Financial Risk Management

Organizers:

Chiheb Ben Hammouda

Utrecht University

c.benhammouda@uu.nl

Raul Tempone

RWTH Aachen University, King Abdullah University of Science and Technology

rtempone@gmail.com

Session Description:

The session is about recent numerical and theoretical advances in quasi-Monte Carlo (QMC) methods to address different challenges in computational finance and Risk management. Challenges range from pricing high-dimensional financial derivatives, computing sensitivities, and efficiently estimating nested expectations arising in financial risk estimation.

Thursday, July 21, 2022, 10:30 – 12:30, Lecture Hall 4

Michael Samet, RWTH Aachen University

Quasi-Monte Carlo for Efficient Fourier Pricing of Multi-Asset Options p. ??

Sifan Liu, Department of Statistics, Stanford University

Conditional Quasi-Monte Carlo With Active Subspaces p. ??

Sergei Kucherenko, Imperial College London

Application of Randomised QMC for Option Pricing and Greeks p. ??

Zhijian He, South China University of Technology

Efficient QMC Methods for Estimating Nested Expectations p. ??

Special Session 13. Recent Advances in Monte Carlo Methods for Forward and Inverse Problems for Stochastic Reaction Networks

Organizers:

Chiheb Ben Hammouda

Utrecht University

c.benhammouda@uu.nl

Sophia Wiechert

RWTH Aachen University

wiechert@uq.rwth-aachen.de

Raúl Tempone

RWTH Aachen University

tempone@uq.rwth-aachen.de

Session Description:

The session is about recent advances related to Monte Carlo methods and variance/dimension reduction techniques for forward/inverse problems and sensitivity analysis for pure jump processes and stochastic reaction networks, with a particular focus on stochastic biological and chemical systems.

Part 1

Thursday, July 21, 2022, 10:30 – 12:30, Lecture Hall 4

Hye-Won Kang, University of Maryland Baltimore County

Stochastic Modeling of Chemical Reactions in Biology p. ??

Sophia Wiechert, RWTH Aachen University

TITLE 2 p. ??

Frank van der Meulen, Vrije Universiteit Amsterdam

Monte Carlo Methods for Sampling Conditioned Stochastic Processes p. ??

Part 2

Thursday, July 21, 2022, 16:30 – 18:00, Lecture Hall 4

Muruhan Rathinam, University of Maryland Baltimore County

Stochastic Filtering of Partially Observed Reaction Networks p. ??

Chiheb Ben Hammouda, Utrecht University

TITLE 2 p. ??

Ankit Gupta, Department of Biosystems Science and Engineering (DBSSE), ETH Zürich

Spectral Estimation of the Koopman Operator for Stochastic Reaction Networks p. ??

Special Session 14. Continuous-Time Dynamics in Monte Carlo and Beyond

Organizers:

Neil Chada

Heriot-Watt University

n.chada@hw.ac.uk

Jonas Latz

University of Manchester

jonas.latz@manchester.ac.uk

Session Description:

Langevin Monte Carlo methods — such as MALA and ULA [3] — construct a Monte Carlo Markov chain by appropriately discretising certain stochastic differential equations. This has the fortunate effect that certain properties of the resulting MCMC algorithms can be derived by studying these SDEs rather than the arising discrete-time Markov chains. The idea of analysing an underlying continuous-time system to understand a discrete-time algorithm is much broader and shall be one focus of this minisymposium – with ‘algorithm’, we foremost want to focus on methods in computational statistics, but also look forward to optimisation methods, such as [2], data assimilation, diffusion models, and partial differential equation methods in data science. The second focus are Monte Carlo methods that are both posed and used in continuous time, such as piecewise-deterministic Markov processes (cf. [1]).

- [1] Bierkens, Joris, Paul Fearnhead & Gareth Roberts (2019). *The Zig-Zag process and super-efficient sampling for Bayesian analysis of big data*. Ann. Statist. 47(3): 1288-1320.
- [2] Li, Qianxiao , Cheng Tai & Weinan E (2019). *Stochastic Modified Equations and Dynamics of Stochastic Gradient Algorithms I: Mathematical Foundations*. J. Mach. Learn. Res. 20(40):1-47.
- [3] Roberts, Gareth & Richard Tweedie (2002). *Exponential convergence of Langevin distributions and their discrete approximations*. Bernoulli 2(4): 341-363.

Thursday, July 21, 2022, 10:30 – 12:30, Lecture Hall 4

SPEAKER 1

TITLE 1 p. ??

SPEAKER 2

TITLE 2 p. ??

SPEAKER 3

TITLE 3 p. ??

Special Session 15. Efficient Methods for Uncertainty Quantification in Differential Equations

Organizers:

Anastasia Istratuca

University of Edinburgh, Heriot-Watt University

a.istratuca@sms.ed.ac.uk

Aretha Teckentrup

University of Edinburgh

a.teckentrup@ed.ac.uk

Session Description:

One of the most common approaches to modelling physical phenomena consists of ordinary and partial differential equations, which allow for computer simulations through the use of modern numerical solvers. These models encompass parameters that often have to be measured or inferred from data. To account for error measurements and scarce availability of the data, we express our uncertainty about the parameters by associating, for example, a probability distribution to them. This mini-symposium focuses on recent advances in algorithms for quantifying the uncertainty in such models.

Part 1

Thursday, July 21, 2022, 10:30 – 12:30, Lecture Hall 4

Sebastian Krumscheid, Karlsruhe Institute of Technology

TITLE 1 p. ??

Elliot Addy, University of Edinburgh

TITLE 2 p. ??

Weiwen Mo, KU Leuven

TITLE 3 p. ??

Vesa Kaarnioja, Freie Universität Berlin

TITLE 4 p. ??

Part 2

Thursday, July 21, 2022, 16:30 – 18:00, Lecture Hall 4

Laura Scarabosio, Radboud University

TITLE 1 p. ??

Fabio Musco, University of Stuttgart

TITLE 2 p. ??

Michael Feischl, TU Wien

TITLE 3 p. ??

Anastasia Istratuca, University of Edinburgh, Heriot-Watt University

TITLE 4 p. ??

Special Session 16. Variance Reduction Techniques for Rare Events

Organizers:

Nadhir Ben Rached

University of Leeds

n.benrached@leeds.ac.uk

Raul Tempone

RWTH Aachen University and KAUST

tempone@uq.rwth-aachen.de

Shyam Mohan Subbiah Pillai

RWTH Aachen University

subbiah@uq.rwth-aachen.de

Session Description:

Rare events are events with small probabilities, but their occurrences are critical in many real-life applications. The problem of estimating rare event probabilities is encountered in various engineering applications (finance, wireless communications, system reliability, Biology, etc.). Naive Monte Carlo simulations are, in this case, substantially expensive. This session focuses on methods belonging to the class of variance reduction techniques. These alternative methods deliver, when appropriately used, accurate estimates with a substantial amount of variance reduction compared to the naive Monte Carlo estimator.

Thursday, July 21, 2022, 10:30 – 12:30, Lecture Hall 4

Eya Ben Amar, KAUST

SDEs for Performance Analysis of Wireless Communication Systems

p. ??

Shyam Mohan Subbiah Pillai, RWTH Aachen University

Importance Sampling for McKean-Vlasov SDEs

p. ??

Chuan-Ju Wang, Research Center for IT Innovation

Markov Chain Importance Sampling for Minibatches

p. ??

Johannes Vincent Meo, University of Oslo

TITLE 4

p. ??

Special Session 17. Multilevel Methods for SDEs and SPDEs

Organizer:

Mike Giles

University of Oxford

mike.giles@maths.ox.ac.uk

Session Description:

Speakers in this session will present and analyse multilevel algorithms for an interesting variety of applications, including chaotic SDEs, stochastic PDEs and kinetic particle models.

Part 1

Thursday, July 21, 2022, 10:30 – 12:30, Lecture Hall 4

Anastasia Istratuca, University of Edinburgh

TITLE 1 p. ??

Håkon Hoel, University of Oslo

TITLE 2 p. ??

Emil Løvbak, Karlsruhe Institute of Technology

TITLE 3 p. ??

Josef Martínek, University of Heidelberg

TITLE 4 p. ??

Part 2

Thursday, July 21, 2022, 16:30 – 18:00, Lecture Hall 4

Filippo De Angelis, University of Oxford

TITLE 1 p. ??

Fabio Nobile, EPFL

TITLE 2 p. ??

Mike Giles, University of Oxford

TITLE 3 p. ??

Special Session 18. Testing and Analysis of Pseudorandom Number Generators

Organizers:

Emil Løvbak

Karlsruhe Institute of Technology

emil.loevbak@kit.edu

Michael Mascagni

Florida State University

mascagni@fsu.edu

Session Description:

Pseudorandom number generators are a core part of scientific computing, lying at the foundation of Monte Carlo methods. Over the history of the field, the quality of such generators has consistently been improved to produce streams of numbers that are hard to distinguish from truly random numbers. There are two approaches to quantify the randomness of a given generator. On the one hand, one can use mathematical techniques to determine the theoretical properties of the generator such as period length, uniformity, and sequence correlation. On the other hand, one can apply statistical benchmarks to empirically test the streams produced by a generator. This minisymposium aims to bring together researchers working on the design and testing of practical random number generators to exchange ideas on how to make use of these two complementary approaches in their evaluation.

Thursday, July 21, 2022, 10:30 – 12:30, Lecture Hall 4

Pierre L'Ecuyer, Université de Montréal

TITLE 1 p. ??

Michael Mascagni, Florida State University

TITLE 2 p. ??

Meltem Sönmez Turan, NIST (Computer Security Division)

TITLE 3 p. ??

Speaker from Szrek2Solutions, name to be confirmed

TITLE 4 p. ??

Special Session 19. Function Spaces and Algorithms for High-Dimensional Problems

Organizers:

Michael Gnewuch

University of Osnabrück, Germany

michael.gnewuch@uni-osnabrueck.de

Klaus Ritter

RPTU Kaiserslautern, Germany

ritter@mathematik.uni-kl.de

Session Description:

High- and infinite-dimensional problems pose serious challenges in numerical practice. An approach to surpass these obstacles is to identify common structural features of the underlying problems. These features are usually encoded in the specific function spaces that are considered in the analysis. In this special session we want to bring together researchers from analysis, approximation theory, and information-based complexity to discuss different types of function spaces and algorithmic approaches for high- and infinite-dimensional integration and approximation problems.

Thursday, July 21, 2022, 10:30 – 12:30, Lecture Hall 4

Dinh Dũng, Vietnam National University, Hanoi, Vietnam

TITLE 1 p. ??

Michael Gnewuch, University of Osnabrück, Germany

TITLE 2 p. ??

Laura Lippert, TU Chemnitz, Chemnitz, Germany

TITLE 3 p. ??

Robin Rüßmann, RPTU Kaiserslautern, Germany

TITLE 4 p. ??

Abstracts

Special Session Talks

Monday, July 18, 2022, 15:30 – 16:00, Lecture Hall 4

Talk title #1

Awesome Speaker #1

Nice University #1

good.email@gooduni.ca

Coauthor(s): co-author 2, co-author 3

Special session: This is a TWO-PART session p.??

Abstract goes here.

Monday, July 18, 2022, 15:30 – 16:00, Lecture Hall 4

Talk title #2

Awesome Speaker #2

Nice University #2

good.email@gooduni.ca

Special session: This is a TWO-PART session p.??

Abstract goes here.

Monday, July 18, 2022, 15:30 – 16:00, Lecture Hall 4

Talk title #3

Awesome Speaker #3

Nice University #3

good.email@gooduni.ca

Coauthor(s): co-author 2, co-author 3

Special session: This is a TWO-PART session p.??

Abstract goes here.

Monday, July 18, 2022, 15:30 – 16:00, Lecture Hall 4

Talk title #4

Awesome Speaker #4

Nice University #4

good.email@gooduni.ca

Coauthor(s): co-author 2, co-author 3

Special session: This is a TWO-PART session p.??

Abstract goes here.

Monday, July 18, 2022, 15:30 – 16:00, Lecture Hall 4

Talk title #5

Awesome Speaker #5

Nice University #5

good.email@gooduni.ca

Coauthor(s): co-author 2, co-author 3

Special session: This is a TWO-PART session p.??

Abstract goes here.

Monday, July 18, 2022, 15:30 – 16:00, Lecture Hall 4

Talk title #6

Awesome Speaker #6

Nice University #6

good.email@gooduni.ca

Special session: This is a SINGLE-PART session p.??

Abstract goes here.

Monday, July 18, 2022, 15:30 – 16:00, Lecture Hall 4

Talk title #7

Awesome Speaker #7

Nice University #7

good.email@gooduni.ca

Coauthor(s): co-author 2, co-author 3

Special session: This is a TWO-PART session p.??

Abstract goes here.

Monday, July 18, 2022, 15:30 – 16:00, Lecture Hall 4

Talk title #8

Awesome Speaker #8

Nice University #8

good.email@gooduni.ca

Coauthor(s): co-author 2, co-author 3

Special session: This is a TWO-PART session p.??

Abstract goes here.

Monday, July 18, 2022, 15:30 – 16:00, Lecture Hall 4

Talk title #9

Awesome Speaker #9

Nice University #9

good.email@gooduni.ca

Coauthor(s): co-author 2, co-author 3

Special session: This is a TWO-PART session p.??

Abstract goes here.

Monday, July 18, 2022, 15:30 – 16:00, Lecture Hall 4

Talk title #10

Awesome Speaker #10

Nice University #10

good.email@gooduni.ca

Special session: This is a TWO-PART session p.??

Abstract goes here.

Monday, July 18, 2022, 15:30 – 16:00, Lecture Hall 4

Talk title #11

Awesome Speaker #11

Nice University #11

good.email@gooduni.ca

Coauthor(s): co-author 2, co-author 3

Special session: This is a TWO-PART session p.??

Abstract goes here.

Monday, July 18, 2022, 15:30 – 16:00, Lecture Hall 4

Talk title #12

Awesome Speaker #12

Nice University #12

good.email@gooduni.ca

Coauthor(s): co-author 2, co-author 3

Abstract goes here.

Contributed Talks

Monday, July 18, 2022, 15:30 – 16:00, Lecture Hall 4

Talk title #13

Awesome Speaker #13

Nice University #13

good.email@gooduni.ca

Coauthor(s): co-author 2, co-author 3

Abstract goes here.

Monday, July 18, 2022, 15:30 – 16:00, Lecture Hall 4

Talk title #14

Awesome Speaker #14

Nice University #14

good.email@gooduni.ca

Coauthor(s): co-author 2, co-author 3

Abstract goes here.

Monday, July 18, 2022, 15:30 – 16:00, Lecture Hall 4

Talk title #15

Awesome Speaker #15

Nice University #15

good.email@gooduni.ca

Coauthor(s): co-author 2, co-author 3

Abstract goes here.

Practical Information

Conference Venue and Important Dates

The conference is hosted by the Johannes Kepler University (JKU) Linz and the Austrian Academy of Sciences, on the campus of JKU. All talks will take place in Lecture Halls 1, 3, 4, 5, or 6, which are located in the Lecture Hall Wing (Lecture Hall 1, “Hörsaaltrakt, HT”) or the Kepler Building (Lecture Halls 3–6, “Keplergebäude, K”). The two buildings are connected to each other and located next to the JKU Library, close to the pond.

The German word for Lecture Hall is “Hörsaal”, sometimes abbreviated “HS”.

Approximate location of Sommerhaus and Harry’s Home

The map below should give you a good idea of the locations of the two main conference hotels (“Sommerhaus” and “Harry’s Home”) and where they are located. It will take approximately 15 minutes to walk to the Lecture Halls from Hotel Sommerhaus and about 20 minutes from Harry’s Home Hotel.

Conference Schedule

The conference schedule will be printed in the program book, and will be available online at the conference webpage. The online version of the schedule will be kept as much up-to-date as possible, reflecting also short-term changes.

Registration and Information Desk

The registration and information desk is located outside of Lecture Hall 1, in Hall B (“Halle B”). Sunday afternoon registration will take place from 13:30 to 16:00 on July 17. Monday morning registration will take place from 08:00 to 12:30 on July 18. In addition, there will be staff at the information desk during the breaks if you should have any questions or concerns.

Sunday Tutorials

Sunday afternoon tutorials will be held in Lecture Hall 1, and are given by Frances Y. Kuo (14:15–15:45) and Chris J. Oates (16:00–17:30).

Opening Ceremony

The opening ceremony will be held in Lecture Hall 1 on Monday, July 18, at 08:45, before the first plenary talk.

Plenary Talks

Plenary talks will be held in Lecture Hall 1. Plenary talks are 50 minutes long, plus 10 minutes for questions and discussions. Due to the tight conference schedule, we kindly ask the chairs to strictly observe the time constraints.

All other talks

All other talks (except plenary talks and tutorials) will be held in parallel sessions in Lecture Halls 1,3,4,5, and 6. These talks are 25 minutes long plus 5 minutes for questions and discussions. Due to the tight conference schedule, we kindly ask all speakers and chairs to strictly observe the time constraints.

Coffee Breaks

Morning and afternoon coffee breaks will take place outside of Lecture Hall 1 in Halls B and C (“Halle B” and “Halle C”).

Reception (Monday)

On Monday, July 18, there will be a welcome reception from 18:30 to 20:30. Drinks and finger food will be provided at the Kepler Hall building (across the road from the university tram stop). Please note that all participants (conference participants and accompanying persons) must be registered in advance for this event.

Award Ceremony of the Journal of Complexity (Tuesday)

On Tuesday, July 19, there will be a short ceremony to award IBC Awards and IBC Young Researcher Awards of the Journal of Complexity. The ceremony will be chaired by the Chief Editor of the journal, Erich Novak, and takes place at 13:50 in Lecture Hall 1 (immediately before the afternoon plenary talk).

Editorial Board Meeting of the Journal of Complexity (Tuesday)

On Tuesday, July 19, the members of the Editorial Board of the Journal of Complexity will have a closed meeting at 19:00. If you have any comments or suggestions regarding the journal, please approach any member of the Editorial Board prior to this meeting. The meeting will take place at RICAM, in the Science Park 2 Building on campus (Science Park 2, Floor 4, Room 416-2, RICAM’s “bigger” seminar room).

Conference Photo (Wednesday)

A conference photo will be taken on Wednesday, July 20, at 16:30, right after the afternoon plenary talk. Details will be announced during the opening of the conference.

Conference Dinner (Wednesday)

The conference dinner will take place at the restaurant “Stadtliebe” in Linz, located in the city center on Landstraße. There is a direct tram connection between the campus of JKU Linz and the location of the restaurant (take Lines 1 or 2 and get off at “Mozartkreuzung”).

Please note that all participants (conference participants and accompanying persons) must be registered in advance for this event. Wristbands for entering the restaurant will be handed out to all registered participants and accompanying persons.

Steering Committee Meeting (Thursday)

On Thursday, July 21, the MCQMC Steering Committee will have a closed meeting, starting at 19:00. If you have any comments or suggestions, or would like to propose hosting a future conference, please approach any member of the Steering Committee prior to this meeting. The meeting will take place in the “Teichwerk” restaurant, located on the pond of the JKU campus.

Covid-19 Rules

The Covid-19 situation has relaxed considerably over the past months in most of Europe, but there are a few Covid rules that we kindly ask you to observe.

- Even though there is no strict mask mandate on JKU campus any longer, there is a strong recommendation to wear masks in crowded places. We fully support this recommendation and ask you to **wear masks** whenever you are within larger groups of people. **Every conference participant will find an FFP2 mask in their conference kit. Please use it.**
- Should you suspect that you might have contracted Covid-19, please **do not** come to the conference venue **under any circumstances**, but make yourself known to the conference organizers. Call the Austrian Agency for Health at +43-732-1450, where you will be assisted with organizing a PCR test and all further steps.
- If you should show symptoms typical of Covid-19 but are not sure whether you might have Covid or a cold or flu, **do not** come to the conference until you have a negative PCR test result.
- In any case, please use common sense, and try to help us in keeping MCQMC 2022 Covid-19 free.

Food

Lunch will *not* be provided. A convenient and inexpensive place to have lunch during the conference week is JKU Mensa, which is the main student cafeteria, located close to the lecture halls, next to the JKU library (see also the campus map). Furthermore, there are several cafes and restaurants on and close to the campus. Please see the table and the map below.

1A	JKU Mensa	www.mensen.at	Mon–Fri	11:00–13:30
1B	Cafe Ch@t	Keplergebäude	Mon–Thu	08:00–19:00
			Fri	08:00–14:00
1C	Science Cafe	Science Park 3	Mon–Thu	08:00–16:00
			Fri	08:00–14:00
1D	Cafe Sassi	Bankengebäude www.sassi.at	Mon–Thu	08:00–16:00
			Fri	08:00–14:00
1E	Teichwerk	University pond www.dasteichwerk.at	Mon–Thu	08:00–16:00
			Fri	08:00–14:00
2	KHG Mensa	Mengerstr. 23 https://www.dioezese-linz.at/khg/mensa/menueplan	Mon–Fri	11:00–13:00
3	Winklermarkt (Supermarket & Restaurant)	Altenbergerstr. 40 https://winklermarkt.at/menuplan/	Mon–Thu	07:30–18:30
			Fri	07:30–19:00
			Sat	07:30–17:00
4a	Pizzeria Bella Casa	Aubrunnerweg 1a Phone: +43-732-245646	Mon–Sun	11:00–15:00 17:00–24:00
4b	Chinese Restaurant Jadegarten	Aubrunnerweg 11 Phone: +43-732-750160	Mon–Sun	11:00–14:30 17:00–23:00
5	Restaurant Burgerista	Altenbergerstr. 6–8 Phone: +43-50-666666	Mon–Thu	10:30–22:00
			Fri–Sat	10:30–23:00
			Sun	10:30–23:00
6	Restaurant Peter's Platz	Freistädter Str. 297 Phone: +43-732-251112	Mon–Sat	11:00–23:00
			Sun	11:00–17:00
7	Subway	Freistädter Str. 313	Mon–Sun	11:00–22:00
8	Asian Restaurant Ost18	Freistädter Str. 315 Phone: +43-732-244042	Tue Wed–Mon	11:30–14:30 11:30–14:30 17:30–23:00
9	Raab Mensa (Restaurant & Bar)	Julius-Raab-Str. 10 Phone: +43-732-24570 www.sommerhaus-hotel.at/de/linz#speiseplan	Bar: Mon–Thu Sat–Sun	06:30–23:30 06:30–11:00
			Restaurant: Mon–Sun	11:30–14:30 17:00–21:00
10	McDonald's & McCafe	Freistädter Str. 298	Sun–Thu Fri–Sat	07:00–00:00 07:00–02:00
11	"Penny" (Supermarket)	J.W.-Klein-Str. 58	Mon–Fri Sat	07:40–20:00 07:40–18:00
12	"Hofer" (Supermarket)	Freistädter Str. 401	Mon–Fri Sat	07:40–20:00 07:40–18:00
13	"Billa" (Supermarket)	Freistädter Str. 400	Mon–Fri Sat	07:40–20:00 07:40–18:00
14	"Spar" (Supermarket)	Altenbergerstr. 69 (on JKU campus)	Mon–Fri Sat	07:30–19:45 08:00–18:00

Travel to Linz

Linz is the third-largest city of Austria, located on the river Danube in the northern part of the country, about half-way between Vienna and Salzburg.

Linz main station (“Linz Hauptbahnhof”) can be easily reached from the airports of Vienna, Munich, and Salzburg, and via fast train connections from other European cities. In particular, there is a direct train connection between Vienna airport and Linz main station that takes approximately 1 hour and 40 minutes, departing from Vienna airport every hour during daytime. For details on train connections see <https://www.oebb.at/en>

Arriving at the main station, you can reach the campus of JKU Linz and the conference hotels by taking Trams 1 or 2 to “JKU/Universität” and getting off at the last stop; this takes approximately 25 minutes. If you stay in Hotel Sommerhaus or Harry’s Home, it may be more convenient to get off at the stop “Schumpeterstraße”. Trams leave on the underground level of the main station. You can buy tickets from the ticket machines at the platform or at newsagents/tobacco stores (“Trafik”). In the latter case, please do not forget to validate your ticket at the ticket machine before getting on the tram. Alternatively, you can download the **LinzMobil** app, where you can plan your trip and buy tickets online.

Linz also has a smaller airport with connections to other European airports. If you arrive at Linz airport, you have the following options to go to the conference venue.

- Take Bus 601 to the main station (approx. 20 minutes), and continue from there by tram (approximately 25 minutes, see above).
- Shuttle service:

<https://www.linz-airport.com/en/Passengers-Visitors/To-and-from-Linz/Airport-Shuttle>.

- Taxi (approx. 45–50 EUR).

Should you arrive by car, the easiest way to reach the JKU campus is to take “A7/Mühlkreis-autobahn” to the exit “Linz-Dornach”. Please note that parking is rather limited on the campus of JKU.

Public transport in Linz

Public transport in Linz is based on trams and buses. Trams 1 and 2 offer a direct connection between the city center and the conference venue. For general information about public transport in Linz, including timetables and maps, visit the “Linz AG Linien” webpage, <https://services.linzag.at/efa/index-en.jsf#>.

An easy way to plan trips and buy tickets for public transport online is to download the **LinzMobil** app.

If you need a taxi, please call +43-732-6969 or contact the conference desk. We can order a taxi for you.

Equipment in Lecture Halls

Each lecture hall is equipped with a desktop computer running Windows, with USB port access and internet connection, a data projector and screen, and blackboards. One MCQMC staff member (with a yellow name tag) will be present in each lecture hall to assist with IT related issues.

We strongly encourage you to make yourself known to your session chair and (if necessary) the MCQMC staff member assigned to your lecture room, prior to your talk. Please bring your talk in the form of a PDF document on a USB storage device and make sure that your talk is copied onto the desktop computer during the break prior to your talk. We cannot guarantee that other file formats than PDF can be displayed correctly.

If you require access to other software packages or other audio-visual equipments, please communicate with the conference organizers well ahead of time to see if it can be arranged. It is possible to connect your personal laptop to the data projector, but we prefer that you avoid this option due to the tight conference schedule. If you need to use your own laptop, please make sure that you discuss this with the MCQMC staff member assigned to your room and that you test the connection well before your talk.

Internet and Computer Access

JKU Linz has eduroam to provide free wireless access for visitors whose home institutions also have eduroam. For more information on eduroam see <http://www.eduroam.org>. Please check with your institution whether you have access to eduroam and for instructions on how to set up eduroam (this depends on your home institution and not on local institutions).

If you cannot use eduroam, conference participants will be granted access to the JKU wireless network on campus. Further details will be announced during the opening of the conference.

Please note that we are unable to set up new accounts at the conference.

In any case, please use the wireless connections provided responsibly.

Printing and Photocopying

The main library of JKU offers the possibility to print, copy, and scan for guests; you will have to pay a fee. All further information can be obtained from the main desk of the JKU library.

Alternatively, conference organizers may be willing to help you with a small amount of printing or photocopying. We ask for your understanding, though, that we cannot provide this as a regular service, but only in exceptional cases.

Useful Contacts and Services on Campus

In case of emergencies, here are a few useful phone numbers:

- Fire department: 122
- Police: 133
- Medical emergencies: 144
- Emergency calls at the University campus: 8144 (for urgent cases), otherwise: 9100
- Europe-wide general emergency call: 112
- Information about physicians on duty after hours: 141

Note that the Europe-wide general emergency number 112 can be called from any cell phone even without a valid subscription or prepaid SIM card inserted.

Physicians, Hospitals, and Pharmacies

The following physicians are located in the area of Hotel Sommerhaus and the campus.

Dr. Winfried Mraczansky	Altenbergerstr. 43 4040 Linz Phone: +43-732-245655	Mon 08:00–11:30, 16:00–17:30 Tue, Thur 08:00–11:30 Wed 08:00–11:30, 16:00–17:30 Fri 08:00–11:00
Dr. Dieter Mojzischek	Streimlingweg 3 4040 Linz Phone: +43-732-251600	Mon–Fri by appointment
Dr. Gottfried Jetschgo	Pulvermühlstr. 23 4040 Linz Phone: +43-732-254121	Mon 08:00–12:00 Tue–Fri 08:00–11:00 Tue, Thu 16:00–18:00

Should you need medication the doctor will give you a prescription which you can take to any pharmacy to pick up the medicine. Pharmacies are also the only places which sell over-the-counter drugs like painkillers, etc. The pharmacy closest to the campus is located in the building of “Winklermarkt” (Altenbergerstr. 40). After hours and on weekends, there are signs in all pharmacies to inform you about the nearest pharmacy on duty. This information can also be found online at

<https://apo24.at/apotheken/nachtdienste/oberoesterreich/95/linz/>.

The general hospital in Linz is Allgemeines Krankenhaus (AKH Linz), Krankenhausstraße 9, which also has an emergency room. In addition, Linz has a number of specialized hospitals, some of which also have emergency rooms. In the case of a medical emergency, call 144.

Power Plugs in Austria

Power sockets are of “Type F”, standard voltage 230 V, standard frequency 50 Hz.

Closing of the Conference

MCQMC 2022 will be closed with a few short announcements and remarks immediately after the final plenary lecture which finishes at 12:30 on Friday, July 22, in Lecture Hall 1. There will also be a short presentation about MCQMC 2024.

Proceedings

Following the tradition of the MCQMC conference series, a selection of strictly refereed papers will be published after the conference as a Springer book. Every speaker is welcome to submit a paper based on his/her talk, with the length strictly not exceeding 16 pages in the Springer style. Plenary and tutorial speakers are invited to submit papers of at most 30 pages length. The papers of plenary and tutorial speakers can be survey articles.

The submission deadline for manuscripts is December 31, 2022. Please send your submissions as a pdf file to mcqmc2022@ricam.oeaw.ac.at.

Further instructions will be provided in the closing session of the conference, and will be available on the conference website later.

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