

## Day 2 (Tuesday, 28 June) Programme

8:30 – 9:15 (28 June), Beveridge Hall

**Wald Lecture II** by **Martin Hairer**, Imperial College London

*Universality and Crossover in 1+1 Dimensions (Part II)*

Chair: Thomas Mikosch, University of Copenhagen

9:20 – 10:05 (28 June), Rooms G22 & G26

**Medallion Lecture** by **Rodrigo Bañuelos**, Purdue University

*A Doob  $h$ -process and its applications to singular integrals on  $Z^d$*

Chair: Tailen Hsing, University of Michigan Ann Arbor

9:20 – 10:05 (28 June), Beveridge Hall

**Medallion Lecture** by **Rina Foygel Barber**, University of Chicago

*Distribution-free Prediction: Exchangeability and Beyond*

Chair: Yingying Fan, University of Southern California

### 10:05 – 10:30: Tea break

10:30 – 12:30 (28 June), Room G03

**IP4: Numerics and Stochastics**

Chair: Evelyn Buckwar, JKU Linz

*Splitting methods in Approximate Bayesian Computation for partially observed diffusion processes*

**Evelyn Buckwar**, Johannes Kepler University Linz

*Randomized operator splitting schemes for abstract evolution equations*

**Monika Eisenmann**, Lund University

*The Exponential Lie Series for Ito Integrals*

**Anke Wiese**, Heriot-Watt University Edinburgh

10:30 – 12:30 (28 June), Room G04

**IP5: Percolation**

Chair: Vincent Tassion, ETH Zurich

*Almost Sharp Sharpness for Boolean Percolation*

**Barbara Dembin**, ETH Zurich

*Sharpness of the phase transition for level-set percolation of strongly correlated Gaussian fields*

**Stephen Muirhead**, University of Melbourne

*Recent Progress on Strongly Correlated Percolation Models*

**Pierre-Francois Rodriguez**, Imperial College London

10:30 – 12:30 (28 June), Room G05

**IP7: Random Matrices**

Chair: Florence Merlevede, Universite Gustav Eiffel, Paris

*Localization and Delocalization in Erdős–Rényi graphs*

**Johannes Alt**, University of Geneva

*Quantitative estimates on random matrices using free probability tools*

**Marwa Banna**, NYU, Abu Dhabi

*Extensions of Approximate Message Passing Algorithms*

**Zhou Fan**, Yale University

*Title TBA*

**Jamal Najim**, Universite Gustave Eiel, Paris

10:30 – 12:30 (28 June), Room G07

**IS9: Statistical Analysis of Large Social Networks**

Chair: Tracy Ke, Harvard University

*A Self-normalizing Cycle Count Statistic*

**Jiashun Jin**, Carnegie Mellon University

*Population-level Balance in Signed Networks*

**Ji Zhu**, University Michigan, Ann Arbor

*Resampling Methods for Networks*

**Liza Levina**, University Michigan, Ann Arbor

*Optimal Estimation of the Number of Network Communities*

**Tracy Ke**, Harvard University

10:30 – 12:30 (28 June), Room G22

**IS12: High-dimensional Statistical Learning**

Chair: Peter Buhlmann, ETH Zurich

*Inducement of sparsity*

**Heather Battey**, Imperial College London

*The price of unfairness in linear bandits with biased feedback*

**Christophe Giraud**, Paris Saclay University

*Robust regression with covariate filtering*

**Po-Ling Loh**, University of Cambridge

10:30 – 12:30 (28 June), Room G26

**IS17: Recent Progress in Randomization Inference**

Chair: Qingyuan Zhao, University of Cambridge

*Covariate-adaptive randomization inference in matched designs*

**Samuel Pimentel**, UC Berkeley

*Randomization Inference beyond the Sharp Null: Bounded Null Hypotheses and Quantiles of Individual Treatment Effects*

**Xinran Li**, University of Illinois at Urbana-Champaign

*Sensitivity Analysis of Individual Treatment Effects: A Robust Conformal Inference Approach*

**Emmanuel Candes**, Stanford University

*Conformal Prediction, Hypothesis Testing, and Rank-Sum Test*

**Jing Lei**, Carnegie Mellon University

10:30 – 12:30 (28 June), Chancellors Hall

**IS22: Tensors in Statistics I**

Chair: Anru Zhang, Duke University

*Shrinking towards Separability: Covariance Estimation for Matrix-variate Data*

**Peter Hoff**, Duke University

*High-order Joint Embedding for Multi-Level Link Prediction*

**Annie Qu**, University of California, Irvine

*Modelling Matrix Time Series via a Tensor CP-Decomposition*

**Jinyuan Chang**, Southwestern University of Economics and Finance, Chengdu

*Multi-linear tensor autoregressive models*

**Han Xiao**, Rutgers University

10:30 – 12:30 (28 June), Room G11

**IS24: Structured High-Dimensional Inference**

Chair: Alexandre Tsybakov, CREST, ENSAE, IP Paris

*Statistical guarantees for generative models without domination*

**Arnak Dalalyan**, CREST/ ENSAE / IP Paris  
*Assigning Topics to Documents by Successive Projections*

**Olga Klopp**, ESSEC, Paris  
*Variable selection, monotone likelihood ratio and group sparsity*

**Mohamed Ndaoud**, University of South California  
*Optimal Discriminant Analysis in High-Dimensional Latent Factor Models*

**Marten Wegkamp**, Cornell University

10:30 – 12:30 (28 June), Room G16

**CTS4: Modern Regression**

Chair: Alastar Young, Imperial College London

*Splitting strategies for selective inference*

**Alastar Young**, Imperial College London

*Regression Diagnostics meets Forecast Evaluation: Conditional Calibration, Reliability Diagrams, and Coefficient of Determination*

**Johannes Resin**, Heidelberg Institute for Theoretical Studies

*Stochastic Tree Ensembles for Regularized Nonlinear Regression*

**Jingyu He**, City University of Hong Kong

*Predictive Model Degrees of Freedom in Linear Regression*

**Yoonkyung Lee**, Ohio State University

*Elastic Gradient Descent and Elastic Gradient Flow: LARS Like Algorithms Approximating the Solution Paths of the Elastic Net*

**Oskar Allerbo**, Chalmers University and University of Gothenburg

**12:30 – 13:30 (28 June): Lunch**

13:30 – 15:30 (28 June), Room G03

**IP8: Growth Processes**

Chair: Alexandre de Oliveira Stauffer, University of Bath

*The Brownian Castle, its universality class and beyond*

**Giuseppe Cannizzaro**, University of Warwick

*Infection spread in a sea of random walks*

**Duncan Dauvergne**, University of Toronto

*Non-equilibrium multi-scale analysis and coexistence in competing first passage percolation*

**Thomas Finn**, University of Bath

*Planar aggregation with subcritical fluctuations and the Hastings-Levitov models*

**Vittoria Silvestri**, University of Rome La Sapienza

13:30 – 15:30 (28 June), Room G04

**IP11: Infinitely Divisible Laws and Processes**

Chair: Jan Rosinski, Knoxville

*Berry-Essen theorem for functionals of certain Infinitely Divisible Processes*

**Andreas Basse-O'Connor**, Aarhus University

*How to characterize the mean value of an infinitely divisible process*

**Witold Bednorz**, University of Warsaw

*Title TBA*

**Jan Rosinski**, University of Tennessee

*Title TBA*

**Gennady Samorodnitsky**, Cornell University

13:30 – 15:30 (28 June), Room G05

**IP12: Optimal Transport in Machine Learning and Artificial Intelligence**

Chair: Marco Cuturi, CREST-ENSAE Paris  
*Variational inference via Wasserstein gradient flows*  
**Philippe Rigollet**, MIT  
*Riemannian Score-Based Generative Modelling*  
**Valentin De Bortoli**, ENS Ulm, CNRS, Paris

13:30 – 15:30 (28 June), Room G11

**IS14: Robust Statistics in High Dimensions**

Chair: Po-Ling Loh, University of Cambridge

*Differentially Private Inference via Noisy Optimization*

**Marco Avella Medina**, Columbia University

*Adversarial Robustness via Optimal Transport*

**Muni Sreenivas Pydi**, University of Wisconsin-Madison

*Robust Estimation and Inference for Joint Quantile and Expected Shortfall Regression*

**Wenxin Zhou**, University of California San Diego

13:30 – 15:30 (28 June), Room G26

**IS19 - Analysis of Multilayer Networks**

Organizer: Marianna Pensky, University of Central Florida

Chair: Lisa Levina, University of Michigan

*Coevolving Latent Space Network with Attractors Models for Polarization*

**Eric Kolaczyk**, University of McGill

*Global and Individualized Community Detection in Inhomogeneous Multilayer Networks*

**Zongming Ma**, University of Pennsylvania

*Discovering underlying dynamics in time series of networks*

**Carey Priebe**, Johns Hopkins University

*Clustering of Diverse Multiplex Networks*

**Marianna Pensky**, University of Central Florida

13:30 – 15:30 (28 June), Room G22

**IS23: Tensors in Statistics II**

Chair: Han Xiao, Rutgers University

*Statistics with Orthogonally Decomposable Tensors*

**Arnab Auddy**, Columbia University

*Guaranteed Functional Tensor Singular Value Decomposition with Applications in Longitudinal*

*Microbiome Data Analysis*

**Anru Zhang**, Duke University

*Tensor PCA in High Dimensional CP Models*

**Cun-Hui Zhang**, Rutgers University

13:30 – 15:30 (28 June), Room G07

**IS27: Analyzing Stochastic Gradient Methods: Noise, Nonconvexity and Dependency**

Chair: Vivak Patel, University of Wisconsin-Madison

*Consistency of Stochastic Gradient Descent*

**Vivak Patel**, University of Wisconsin Madison

*Necessary and Sufficient Geometries for Gradient Methods*

**John Duchi**, Stanford University

13:30 – 15:30 (28 June), Chancellors Hall

**IS29: New Developments on Foundations of Statistical Inference in Data Science**

Chair: Minge Xie, Rutgers University

*Testing in Bayesian and Frequentist Paradigms and a Possible Compromise*

**Vladimir Vovk**, University of Royal Holloway

*Exact Multivariate Inference in Estimating Equations - an Approach by Data Depth and Confidence Distribution*

**Regina Liu**, Rutgers University

*Beyond Wald-Neyman-Pearson*

**Peter Grünwald**, CWI and Leiden University

*Generalized Fiducial Inference on Differentiable Manifolds*

**Jan Hannig**, University of North Carolina at Chapel Hill

Discussant: **Xiao-Li Meng**, Harvard University

13:30 – 15:30 (28 June), Room G16

**CTS6: Stochastic Differential Equations**

Chair: Andre Schenke, Bielefeld University

*Taming singular stochastic differential equations: A numerical method*

**Chengcheng Ling**, TU Berlin

*A Law of Large Numbers for interacting diffusions via a mild formulation*

**Florian Bechtold**, Bielefeld University

*On regularization by noise of an averaged version of the Navier-Stokes equations*

**Theresa Lange**, Bielefeld University

*The Galerkin analysis for the random periodic solution of semilinear stochastic evolution equations*

**Yue Wu**, University of Strathclyde

*Nonuniqueness in law for stochastic hypodissipative Navier-Stokes equations*

**Andre Schenke**, Bielefeld University

**15:30 – 16:00 (28 June): Tea break**

16:00 – 17:30 (28 June), Room G03

**TC9: New Models and Evaluation Methods for Changepoint Detection**

Chair: Rebecca Killick, Lancaster University

*Multiple Change-point Detection With a priori Constraints on Consecutive Changes*

**Vincent Runge**, University of Evry

*Automatic calibration of change-point detection methods*

**Charles Truong**, Centre Borelli, France

*Optimizing ROC Curves with a Sort-Based Surrogate Loss Function for Binary Classification and Changepoint Detection*

**Toby Dylan Hocking**, Northern Arizona University

*An Evaluation of Change Point Detection Algorithms*

**Gerrit Van der Burg**, Alan Turing Institute, UK

16:00 – 17:30 (28 June), Room G04

**TC10: Statistical and Causal Inference in Algorithmic Fairness and Recourse**

Chair: Nicolai MeinsHausen, ETH Zurich

*Statistical vs. Causal Fair Predictions*

**Drago Plecko**, ETH Zurich

*Algorithmic Recourse: from theory to practice*

**Amir-Hossein Karimi**, Max Planck Institute for Intelligent System Tubingen

16:00 – 17:30 (28 June), Room G07

**TC12: Graphical Modeling of Multivariate Functional Data**

Chair: Alexander Petersen, Brigham Young University

*Functional Differential Graph Estimation with fully and discretely observed curves*

**Mladen Kolar**, University of Chicago

*High-dimensional nonparametric functional graphical models via the additive partial correlation operator*

**Eftychia Solea**, National School of Statistics and Information Analysis, France

*Adaptive Functional Thresholding for Sparse Covariance Function Estimation in High Dimensions*

**Qin Fang**, London School of Economics

*Partial Separability and Functional Graphical Models for Multivariate Gaussian Processes*

**Alexander Petersen**, Brigham Young University

16:00 – 17:30 (28 June), Room G11

**TC13: New Directions in Theory and Practice of Formally Private Synthetic Data**

Chair: Aleksandra Slavkovic, Penn State University

*Data Augmentation MCMC for Bayesian Inference from Privatized Data*

**Ruobin (Robin) Gong**, Rutgers University

*Formal Privacy for Partially Private Data*

**Jeremy Seeman**, Penn State University

*Mechanisms for Global Differential Privacy under Bayesian Data Synthesis*

**Jingchen (Monika) Hu**, Vassar College

16:00 – 17:30 (28 June), Room G16

**TC14: Sequential Methods for Big Data Analysis**

Chair: Alexander Tartakovsky, AGT StatConsult

*The effect of prior information on optimal sequential control of generalized multiple testing metrics*

**Jay Bartroff**, University of Southern California

*Detection of transient changes and application in statistical genetics*

**Michael Baron**, American University

*Point processes with infinite intensity: a new model for bursty spatial sources*

**Sergei Zuev**, Chalmers University

*Optimal Joint Sequential Detection and Identification of Changes in Multiple Data Streams*

**Alexander Tartakovsky**, AGT StatConsult

16:00 – 17:30 (28 June), Room G22

**TC15: Advances in Directional Statistics**

Chair: Thomas Verdebout, Université Libre de Bruxelles

*Finite Sample Smeariness for Directional Data*

**Stephan Huckeman**, University of Goettingen

*Geological Features, Parallel Lines and Circular Statistics*

**Peter Jupp**, University of St Andrews

*Spatial Quantiles on the Hypersphere*

**Davy Paindaveine**, Université Libre de Bruxelles

*Asymptotic Power of Sobolev Tests for Uniformity on Hyperspheres*

**Thomas Verdebout**, Université Libre de Bruxelles

16:00 – 17:30 (28 June), Room G26

**TC16: Statistical Inference for Continuous-time Stochastic Processes**

Chair: Vladimir Minin, University of California, Irvine

*Pseudo-marginal inference for CTMCs on infinite spaces via monotonic likelihood approximations*

**Alexandre Bouchard-Côté & Miguel Biron-Lattes**, University of British Columbia

*Variational inference of evolutionary trees*

**Julia Palacios**, Stanford University

*Functional Models for Time Varying Random Objects*

**Paromita Dubey**, University of Southern California

*Fitting Stochastic Epidemic Models to Gene Genealogies Using Linear Noise Approximation*

**Vladimir Minin**, University of California, Irvine

16:00 – 17:30 (28 June), Chancellors Hall

**New Researchers Group Session**

Chair: Raaz Dwivedi, Harvard University. Organizer: Yuansi Chen, Duke University

*Robust inference using Posterior Bootstrap*

**Emilia Pompe**, University of Oxford

*Variational inference versus MCMC*

**Yian Ma**, University of California San Diego

*Comparison of Markov Chains via Weak Poincaré Inequalities with Application to Pseudo-marginal MCMC*

**Andi Wang**, University of Bristol

17:30 – 19:00 (28 June), Chancellors Hall

**Award Presentation**

**Presidential Address by Krzysztof Burdzy**