

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

Simulation of McKean Vlasov SDEs with Super-linear Drift in Measure and Space

Xingyuan Chen, University of 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

Height Function Delocalisation on Cubic Planar Graphs

Piet Lammers, IHES

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

Properties of Large Lotka-Volterra Systems of Coupled Differential Equations with Random Interactions

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: Alastair Young, Imperial College London

Splitting strategies for selective inference

Alastair Young, Imperial College London

Regression Diagnostics meets Forecast Evaluation: Conditional Calibration, Reliability

Diagrams, and Coefficient of Determination

Johannes Resin, Heidelberg Institute for Theoretical Studies

Least Squares Estimation of a Quasiconvex Regression Function

Rohit Patra, University of Florida

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

Online SGD under Infinite Noise Variance

Murat A. Erdogdu, University of Toronto
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: Chengcheng Ling, TU Berlin

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 Meinhäuser, 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 Systems 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