

## Day 4 (Thursday, 30 June) Programme

9:00 – 9:40 (30 June), Room G03

### **CTS16: Data Privacy**

Chair: Daniel Alabi, Harvard University

*Edge Differentially Private Estimation in the  $\beta$ -model via Jittering and Method of Moments*

**Fengting Yi**, Southwestern University of Finance and Economics, Chengdu

*Hypothesis Testing for Differentially Private Linear Regression*

**Daniel Alabi**, Harvard University

9:00 – 10:00 (30 June), Room G04

### **CTS17: Monte Carlo Methods**

Chair: Guo-Jhen Wu, KTH Royal Institute of Technology

*Analysis of Langevin Monte Carlo from Poincaré to Log-Sobolev*

**Mufan Li**, University of Toronto, mufan.li@mail.utoronto.ca

*Analysis and optimization of certain parallel Monte Carlo methods in the low temperature limit*

**Guo-Jhen Wu**, KTH Royal Institute of Technology, gjwu@kth.se

9:00 – 10:00 (30 June), Room G05

### **CTS18: Statistical Tests**

Chair: Dimitrios Bagkavos, University of Ioannina

*Distance correlation, Hilbert–Schmidt and global tests: A look into independence testing in discrete spaces from three perspectives*

**Fernando Castro-Prado**, University of Santiago de Compostela

*Testing the goodness-of-fit of maximum likelihood estimates of normal mixture densities via kernel smoothing techniques*

**Dimitrios Bagkavos**, University of Ioannina

9:00 – 10:00 (30 June), Room G07

### **CTS19: Some Topics in Modern Statistics**

Chair: Sofia S Villar, University of Cambridge, sofia.villar@mrc-bsu.cam.ac.uk

*Stochastic gradient descent for estimation and inference in spatial autoregressive models*

**Ji Meng Loh**, New Jersey Institute of Technology

*Nonparametric, tuning-free estimation of S-shaped functions*

**Yining Chen**, London School of Economics

*Design-based Inference for Bandit Algorithms*

**Sofia S Villar**, University of Cambridge

9:00 – 10:00 (30 June), Room G16

### **CTS20: Epidemic Dynamics and Environmental Study**

Chair: Stefan Heyder, TU Ilmenau

*An endogenous approach to explore epidemic dynamics on a network*

**Abhinandan Dalal**, University of Pennsylvania

*Learning torus PCA based classification for multiscale RNA correction with application to SARS-CoV-2*

**Stephan Huckeman**, University of Gottingen

*Regional estimates of reproduction numbers with application to COVID-19*

**Stefan Heyder**, TU Ilmenau

9:00 – 10:00 (30 June), Room G22

### **CTS21: Some Topics in Statistical Learning**

Chair: Wicher Bergsma, London School of Economics

*Plugin Estimation of Smooth Optimal Transport Maps*

**Tudor Manole**, Carnegie Mellon University

*On quantiles, continuity, and robustness*

**Riccardo Passeggeri**, Imperial College London

*Estimation and selection of additive interaction models using I-priors*

**Wicher Bergsma**, London School of Economics

9:00 – 10:00 (30 June), Room G26

**CTS22: Complex Data Analysis**

Chair: Aritra Halder, University of Virginia

*Wasserstein Distributionally Robust Estimation with Wasserstein Barycenters*

**Tim Tsz-Kit Lau**, Northwestern University

*Curvature Processes: Directional concavity in Gaussian random fields*

**Aritra Halder**, University of Virginia

9:00 – 10:00 (30 June), Room G21A

**CTS24: Spatial Data and Outliers**

Chair: Gabriel Wallin, London School of Economics

*Additive Gaussian Process Models for Spatial and Spatio-temporal Analysis*

**Sahoko Ishida**, London School of Economics

*Blind Source Separation over Space*

**Bo Zhang**, University of Science and Technology of China

*Two-way outlier detection for item response data*

**Gabriel Wallin**, London School of Economics

**10:00 – 10:30 (30 June): Tea break**

10:30 – 12:30 (30 June), Room G03

**IP22: Reflecting Diffusions, Stochastic Networks and Applications**

Organizer: Cristina Costantini, University of Chieti-Pescara

Chair: Ruth J. Williams, University of California, San Diego

*Domains of Attraction of Invariant Distributions of the Infinite Atlas Model*

**Amarjit Budhiraja**, University of North Carolina at Chapel Hill

*Error Bounds for the Constrained Langevin Approximation for Density Dependent Markov Chains*

**Felipe A. Campos**, University of California, San Diego

*Reflecting Diffusions in Non-smooth Domains: Some New Uniqueness Results*

**Cristina Costantini**, University of Chieti-Pescara

*Diffusion Limits for Multiclass Processor Sharing Queues*

**Amber Puha**, California State University San Marcos

10:30 – 12:30 (30 June), Room G04

**IP23: Centennial of the Lindeberg Central Limit Theorem**

Chair: Adam Jakubowski, University of Torun

*The Central Limit Theorem: Lindeberg and after*

**Rene Schilling**, TU Dresden

*Asymptotic normality in Banach spaces via Lindeberg method*

**Alfredas Rackauskas**, Vilnius University

*Lindeberg Central Limit Theorem and the Principle of Conditioning*

**Adam Jakubowski**, Nicolaus Copernicus University

10:30 – 12:30 (30 June), Room G05

**IP26: Random Walks in Static and Dynamic Random Environments**

Chair: Jonathon Peterson, Purdue University

*Random Walk on the Simple Symmetric Exclusion Process*

**Daniel Kious**, University of Bath

*Biased Random Walk on Dynamical Percolation*

**Nina Gantert**, Technical University Munich

*Random conductance models on simple point processes*

**Alessandra Faggionato**, University La Sapienza

*Anomalous Fluctuations for Random Walks in Dynamic Random Environments with Resetting*

**Luca Avena**, Leiden University

10:30 – 12:30 (30 June), Room G07

**IP29: Geodesics in First-passage Percolation**

Chair: Daniel Ahlberg, Stockholm University

*Empirical Measures, Geodesic Lengths, and a Variational Formula in First-passage Percolation*

**Erik Bates**, University of Wisconsin, Madison

*Transitions for Exceptional Times in Dynamical First-Passage Percolation*

**Jack Hanson**, City University of New York

*Superconcentration, Chaos and Multiple Valleys in First-Passage*

*Percolation*

**Maria Deijfen**, University of Stockholm

10:30 – 12:30 (30 June), Room G22

**IS8 Selective Inference**

Chair: Jacob Bien, University of Southern California

*Multiple testing of partial conjunction null hypotheses, with application to replicability analysis of high-dimensional studies*

**Thorsten Dickhaus**, University Bremen

*Is the Best Good Enough? Goodness-of-fit After Selection*

**Joshua Loftus**, London School of Economics

*Selective inference for hierarchical clustering*

**Lucy Gao**, University of Waterloo

*A (tight) upper bound for the length of confidence intervals with conditional coverage*

**Hannes Leeb**, University of Vienna

10:30 – 12:30 (30 June), Room G16

**IS10: Spatial and Spatial-temporal Modelling**

Chair: Hsin-Cheng Huang, Academia Sinica, Taipei

*Accelerated Spatio-Temporal Changes in Arctic Sea Ice from Remote Sensing Data*

**Noel Cressie**, University of Wollongong and **Bohai Zhang**, Nankai University

*Asynchronous Change-point Estimation for Spatially Correlated Functional Time Series*

**Bo Li**, University of Illinois Urbana-Champaign

*Composite likelihood inference for ordinal periodontal data with replicated spatial patterns*

**Jun Zhu**, University of Wisconsin-Madison

10:30 – 12:30 (30 June), Room G26

**IS13: Adaptive Learning**

Chair: Alexandra Carpentier, University of Magdeburg

*Minimax Non-Parametric Testing: Local Adaptivity, Conditional Independence, and Calibration via Permutation*

**Sivaraman Balakrishnan**, Carnegie Mellon University

*Fundamental limits for learning hidden Markov model*

**Elisabeth Gassiat**, Universite Paris Sud

*Tracking Most Significant Arm Switches in Bandits*

**Samory Kpotufe**, Columbia University

*Optimal Ranking in Crowd-Sourcing Problems*

**Nicolas Verzelen**, INRAE Montpellier

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

**IS25: Conformal Predication, Semiparametric Statistics, and Causal Inference**

Organizer: Yachong Yang, University of Pennsylvania

Chair: Arun Kumar Kuchibhotla, Carnegie Mellon University

*Conformal Inference of Counterfactuals and Individual Treatment Effects*

**Lihua Lei**, Stanford University

*Finite-Sample Efficient Conformal Prediction*

**Yachong Yang**, University of Pennsylvania

*Overparameterized Ridgeless Regression: Can LOOCV and GCV still Estimate Out-of-Sample*

*Test Error when the Training Error is Zero?*

**Ryan Tibshirani**, Carnegie Mellon University

10:30 – 12:30 (30 June), Room G21A

**CTS1: High-Dimensional Inference**

Jie Li, London School of Economics

*High dimensional PCA: A new model selection criterion*

**Abhinav Chakraborty**, University of Pennsylvania

*Inference in high-dimensional logistic regression models with separated data*

**Rebecca Lewis**, Imperial College London

*A finite sample analysis of the benign overfitting phenomenon for ridge function estimation*

**Stephane Chretien**, University of Lyon

*Robust Mean and Eigenvalues Regularised Covariance Matrix Estimation*

**Wenyu Cheng**, London School of Economics

*Laplace and Saddlepoint Approximations in High Dimensions*

**Yanbo Tang**, University of Toronto

*Factorized estimation of high-dimensional nonparametric covariance models*

**Jie Li**, London School of Economics

**12:30 – 13:30 (30 June): Lunch**

13:30 – 15:30 (30 June), Room G03

**IP24: Quantum Field Theory and Stochastic Analysis**

Chair: Hao Shen, University of Wisconsin-Madison

*Large  $N$  limit of 2D pure Gauge Theories*

**Antoine Dahlqvist**, University of Sussex

*Grassmannian stochastic analysis and the stochastic quantization of Euclidean Fermions*

**Francesco de Vecchi**, University of Bonn

*Log-Sobolev Inequalities and Renormalisation*

**Benoit Dagallier**, University of Cambridge

*Stochastic quantisation of gauge theories*

**Ajay Chandra**, Imperial College London

13:30 – 15:30 (30 June), Room G05

**IP25: High-dimensional Extremes and Their Applications**

Organizer, Richard Davis, Columbia University

Chair: Gennady Samorodnitsky, Cornell University  
*Tail Inverse Regression for Dimension Reduction with Extreme Response*  
**Anne Sabourin**, Telecom Paris, Institut Polytechnique de Paris  
*Distributed inference in extreme value statistics*  
**Chen Zhou**, Erasmus Universiteit Rotterdam  
*Title TBA*  
**Michaël Lalancette**, University of Toronto  
*Spectral Learning of Multivariate Extremes*  
**Richard Davis**, Columbia University

13:30 – 15:30 (30 June), Room G07

**IP27: Stable Random Walks, Capacity and Fractional Diffusions Session in Honour of Mark M. Meerschaert**

Organizer: John P. Nolan, American University

Chair: Stilian Stoev, University of Michigan

*Attraction to and repulsion from patches on the hypersphere and hyperplane for isotropic  $d$ -dimensional  $\alpha$ -stable processes with index in  $\alpha \in (0, 1]$  and  $d \geq 2$*

**Andreas Kyprianou**, University of Bath

*Calculating alpha-capacity via stable random walks*

**John Nolan**, American University

*A Study on the Stability of the Mean Value Property for the Fractional Laplacian*

**Claudia Bucur**, University of Insubria

*On coupled Continuous Time Random Walks*

**Hans-Peter Scheffler**, University of Siegen

13:30 – 15:30 (30 June), Room G04

**IP28: Vector- and Function-valued Random Fields: Models, Structure and Regularity**

Organizer: Stilian Stoev, University of Michigan

Chair: Tailen Hsing, University of Michigan

*Vector valued random fields for color images*

**Hermine Bierme**, University of Tours

*Wavelet random matrices and high-dimensional eigenanalysis*

**Gustavo Didier**, Tulane University

*Function valued random fields: Tangents, intrinsic stationarity, and self-similarity*

**Stilian Stoev**, University of Michigan

*Sample Path and Extreme Value Properties of Multivariate Gaussian Random Fields*

**Yimin Xiao**, Michigan State University

13:30 – 15:30 (30 June), Room G22

**IS7: Advances in Causal Inference**

Organizer: Jonas Peters, University of Copenhagen

Chair: Rajen Shah, University of Cambridge

*Towards deriving graphical rules for efficient in causal graphical models*

**Andrea Rotnitzky**, Universidad Torcuato Di Tella and Harvard University

*Stochastic Causal Programming for Bounding Treatment Effects*

**Ricardo Silva**, University College London

*Debiased Inverse Propensity Score Weighting for Estimation of Average Treatment Effects with High-Dimensional Confounders*

**Rajen Shah**, University of Cambridge

13:30 – 15:30 (30 June), Room G26

**IS15: Statistical Machine Learning**

Organizer: Lester Mackey, Microsoft Research & Stanford  
Chair: Raaz Dwivedi, UC Berkeley  
*Online Learning in the Real World: Delay, Optimism, and Subseasonal Forecasting*  
**Genevieve Flaspohler**, MIT  
*Gradient-Free Kernel Stein Discrepancy*  
**Matthew Fisher**, University of Newcastle  
*Randomization Tests for Adaptively Collected Data*  
**Lucas Janson**, Harvard University  
*Counterfactual Inference in Sequential Experimental Design*  
**Raaz Dwivedi**, UC Berkeley

13:30 – 15:30 (30 June), Room G16

**IS31: Game-theoretic Statistics and Safe Anytime-valid Inference**

Chair: Rina Barber, University of Chicago. Organizer: Aaditya Ramdas, Carnegie Mellon University

*Game-Theoretic Probability and Statistics*

**Volodya Vovk**, Royal Holloway University of London

*Sequential Tests with Optional Stopping and Anytime-Valid Effect Size Estimation for Two-Sample Data Streams using E-Processes*

**Rosanne Turner**, CWI Amsterdam

*Testing Exchangeability: Fork-Convexity, Supermartingales, and E-processes*

**Johannes Ruf**, London School of Economics

*E-detectors: a nonparametric framework for sequential change point detection*

**Alessandro Rinaldo**

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

**Special Invited Session on Wahba's Contributions**

Chair: Ming Yuan, Columbia University

*Grace Wahba's Work on Nonparametric Function Estimation*

**Wing Hung Wong**, Stanford University

*Decision trees in practice: lower bounds and a new shrinkage algorithm*

**Bin Yu**, University of California, Berkeley

*Non-stationary Spatial Data: Think Globally Act Locally*

**Douglas Nychka**, Colorado School of Mines

*Grace Wahba's Contribution to Statistical Machine Learning and Optimization*

**Hao Helen Zhang**, University of Arizona

13:30 – 15:00 (30 June), Room G21A

**TC17: Machine Learning Methods in Biomedical Studies**

Chair: Rui Feng, University of Pennsylvania

*Bayesian Multiple Instance Learning with Application to Cancer Detection Using TCR Repertoire Sequencing Data*

**Sherry Wang**, Southern Methodist University & University of Texas Southwestern Medical Center

*Network Functional Varying Coefficient Model*

**Yanyuan Ma**, Pennsylvania State University

*RNA sequencing differential analysis using machine learning algorithms*

**Dongmei Li**, University of Rochester

*Layer-wise Propagation Relevance for Deep Learning with Graph Structure*

**Rui Feng**, University of Pennsylvania

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

16:00 – 16:45 (30 June), Beveridge Hall

**IMS/BS Schramm Lecture by Russell Lyons**, Indiana University

*Monotonicity for Continuous-Time Random Walks*

Chair: Adam Jakubowski, Nicolaus Copernicus University

16:50 – 17:35 (30 June), Beveridge Hall

**Wahba Lecture by Michael Jordan**, University of California, Berkeley

*On the Blending of Statistical Machine Learning and Microeconomics*

Chair: Douglas Nychka, Colorado School of Mines