

PROGRAMME

2nd IMA Conference On Inverse Problems From Theory To Application

Wednesday September 4, 2019 - Friday September 6, 2019
University College London, Gower Street, London, WC1E 6BT, UK

Wednesday 4 September	
9:00-9:30	Registration & Coffee
9.30-10:15 Keynote Talk	<i>Stochastic image models for image and video restoration – Julie Denon (MAP5, Paris Descartes University)</i>
Session 1: Statistical Inverse Problems	
10:20-10.40	<i>Convergence Analysis of (Statistical) Inverse Problems under Conditional Stability Estimates - Frank Werner</i>
10.45-11:05	<i>Stability constraints in parameter identification problems for biological reaction networks - Eduard Campillo-Funollet</i>
Session 2: Bayesian Methods I	
11:10-11:30	<i>New theoretical insights into regularisation in maximum-a-posteriori Bayesian estimation in convex inverse problems - Marcelo Pereyra</i>
11:35-11:55	<i>Predictive risk minimization of the expectation maximization algorithm for Poisson data: application to STIX imaging - Federico Benvenuto</i>
11:55-12:30	Coffee/Tea Break
Session 3: Multi Image Reconstruction	
12:30-12:50	<i>Spectral CT Multi-material Reconstruction using Regularization by Denoising Iterative Sketching - Alessandro Perelli</i>
12.55-13:15	<i>Schatten-q-Norm based distance measures for registration of multiple images - Kai Brehmer</i>
13:20-13:40	<i>Colour Level Set Regularization for the 3D Electromagnetic Imaging of Shielded Boxes - Alexander Hiles</i>
13:40-14:45	Lunch Break – Lunch is provided by the IMA
14:45-15:30 Keynote Talk	<i>Regularizing Inverse Problems with Neural Networks - Markus Haltmeier (University of Innsbruck)</i>

Session 4: Deep Learning	
15:35-15:55	<i>Networks for Nonlinear Diffusion Problems</i> - Andreas Hauptmann
16:00-16:20	<i>Deep learning-based vertebral segmentation from lateral spine x-ray</i> - Jack Spencer (On behalf of Joel Tabak-Sznajder)
16:20-16:50	Coffee/Tea Break
Session 5: Regression	
16:50-17:10	<i>A Robust-Based Simulation-Extrapolation Technique for Estimating Regression Coefficients</i> - Fatemah Alqallaf
17:30-19:00	Poster session with reception in North Cloisters, UCL Wilkins Building

Thursday 5 September	
9.00-9.45 Keynote Talk	<i>Bayesian inference with nested sampling</i> - Mike Hobson (University of Cambridge)
Session 6: Variational Methods	
9:50-10:10	<i>Total Variation Minimization by Convergent Domain Decomposition Methods</i> – Andreas Langer
10.15-10.35	<i>Nonlinear Matrix Recovery</i> - Florentin Goyens
10:40-11:00	<i>Interactive variational segmentation in medical imaging</i> – Jack Spencer
11:00-11:30	Coffee/Tea Break
Session 7: Tomography I	
11.30-11.50	<i>Faster PET Reconstruction with Non-Smooth Priors by Randomization</i> - Matthias Ehrhardt
11.55-12.15	<i>Efficient stochastic reconstruction in photoacoustic imaging using the Hamilton-Green solver</i> - Francesc Rullan
12:20-12:40	<i>The Funk-Radon transform and spherical tomography</i> - Michael Quellmalz

12.45-13:05	<i>Restoration of solar images affected by diffraction and saturation effects via a sparse-enhancing method with application to SDO/AIA images - Sabrina Guastavino</i>
13:05-14:00	Lunch Break – Lunch is provided by the IMA
Session 8: PDEs and Inverse Problems	
14:00-14:20	<i>Towards Object Classification for Metal Detection using MPTs – Paul Ledger</i>
14:25-14:45	<i>Convergence rates for inverse problems with imperfect forward operators - Yury Korolev</i>
14:50-15:10	<i>Potential Scattering at Low Energy - Alden Waters</i>
15:15-15:35	<i>Transmission of information in multiplier equations - Mirza Karamahmedovic</i>
15:35-16:00	Coffee/Tea break
16:00-17:00 Keynote Talk	<i>Inverse problems for partial differential equations – A Memorial Lecture for Slava Kurylev – Matti Lassas (University of Helsinki)</i>
19:00-22:00	Dinner at Antalya Restaurant for Booked Delegates

Friday 6 September	
9.00-9.45 Keynote Talk	<i>Splines and inverse problems: From compressed sensing to deep neural networks – Michael Unser (EPFL)</i>
Session 9: 4D Tomography	
9:50-10:10	<i>4D Computed Tomography with Sequential Scanning Systems - Felix Lucka</i>
10:15-10:35	<i>Motion estimation and image reconstruction for dynamic CT of the foot and ankle - Nargiza Djurabekova</i>
10:40-11:00	<i>Dynamic Photoacoustic Reconstruction using Sparsity in the Curvelet Frame with Optical Flow Constraint - Bolin Pan</i>
11:00-11:30	Coffee/Tea Break
Session 10: Tomography II	
11:30-11:50	<i>Modeling of the Magnetic Particle Imaging Physics - Theoretical insights and image reconstruction - Tobias Kluth</i>

11:55-12:15	<i>PAMMOTH III (A hybrid system for detection of cancerous lesions in the breast)</i> - Ashkan Javaherian
12:15-13:20	Lunch Break – Lunch is provided by the IMA
Session 11: Bayesian Methods II	
13:20-14:05 Keynote Talk	<i>Optimal Transport for Machine Learning</i> - Gabriel Peyré (CNRS and Ecole Normale Supérieure)
14:10-14:30	<i>Maximum likelihood estimation of regularisation parameters: an empirical Bayesian approach</i> - Ana Fernandez Vidal
14:35-15:00	Coffee/Tea break
15:00-15:20	<i>Inverse problem approach to regularized regression models with application to predicting recovery after stroke</i> - Youssef Hbid
15:25-15:45	<i>Quantifying Uncertainty in High Dimensional Inverse Problems by Convex Optimisation</i> - Jason McEwen
15:50	Conference End