Institute of mathematics & its applications

7th IMA Conference on Numerical Linear Algebra and Optimization

University of Birmingham

29 June – 1 July 2022

CONFERENCE PROGRAMME

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Day One – Wednesday 29th June 2022

09.00	**Invited Speaker - Pierre-Antoine Absil**	
10.00	*Fast and accurate optimization on theorthogonal manifold without retraction, Pierre Ablin*	
10.25	Circulant Preconditioning of the Fast Gradient Method for Predictive Control, Ian McInerney	
10.50	***Networking & Coffee Break***	
11.20	Low-rank matrix recovery with Ky Fan 2-k-norm, Xuan Vinh Doan	***Breakout Room – Watson Lecture theatre C*** *An apocalypse-free first-order low-rank optimization algorithm, Guillaume Olikier*
11.45	Multivariate Least–Squares Approximations in Irregular Domains via Vandermonde with Arnoldi, Wenqi Zhu	***Breakout Room – Watson Lecture theatre C*** *A Fully Discrete, Riemanninan Approach to PDE-Constrained Shape Optimization, Estefania Loayza Romero*
12.10		***Breakout Room – Watson Lecture theatre C*** *Computing second-order points under equality constraints using Fletcher's augmented Lagrangian, Florentin Goyens*
12.35	***Networking & Lunch***	
14.00	**Invited Speaker, Algorithms for Deterministically Constrained Stochastic Optimizatio, Frank Curtis**	
14.50	***Networking & Coffee Break***	

15.10	New indicators for the early termination of the linear solver in Interior Point Methods, Filippo Zanetti	***Breakout Room – Watson Lecture theatre C*** *Label-free Domain Adaptation on Riemannian Manifolds, Ronen Talmon*
15.35	Randomized GMRES with Singular Vectors Based Deflated Restarting, Yongseok Jang	***Breakout Room – Watson Lecture theatre C*** *Interpolating on the Stiefel manifold under a one-parameter family of metrics, Ralf Zimmerman*
16.00	Iterative methods for interior point algorithms applied to the L2 Optimal Transport Problem, Enrica Facca	***Breakout Room – Watson Lecture theatre C*** *Computing the geometric condition number of tensor decompositions by Tucker compression, Nick Dewaele*
16.25	***Networking & Coffee Break***	
16.50	Optimal control of bifurcation structures, Nicolas Boulle	***Breakout Room – Watson Lecture theatre C*** *Factorized structure of the long-range two-electron integrals tensor and its application in quantum chemistry, Siwar Badreddine*
17.15	Preconditioning Optimal Control of Incompressible Viscous Fluid Flow, Santolo Leveque	***Breakout Room – Watson Lecture theatre C*** *Mode-matching analysis of eigenvalue problems arising in the study of two-dimensional acoustic waveguide structures, Rab Nawaz*
17.40	**Day 1 Ends**	

Day Two - Thursday 30th June 2022

09.00	**Invited Speaker - Moritz Diehl (Online)**	
10.00	Deflation in saddle-point systems following a Golub-Kahan bidiagonalization, Andrei Dumitrasc	***Breakout Room – Watson Lecture theatre C*** *Primal-Dual Newton Proximal Method for Convex Quadratic Programs, and Beyond, Alberto De Marchi*
10.25	Computing the square root of a low-rank perturbation of the scaled identity matrix, Xiaobo Liu	***Breakout Room – Watson Lecture theatre C*** *Primal Dual Regularized IPM: a Proximal Point perspective, Stefano Cipolla*
10.50	***Networking & Coffee Break***	
11.20	Randomized, Adaptive Linear System Solvers, Vivek Patel	***Breakout Room – Watson Lecture theatre C*** *A semismooth Newton-proximal method of multipliers forℓ_1-regularized convex quadratic programming, Jacek Gondzio*
11.45	An Ordering Metaheuristic for Symmetric Sparse Direct Solvers, Marcel Jacobse	***Breakout Room – Watson Lecture theatre C*** *A Sequential Homotopy Method for Mathematical Programming Problems, Andreas Potschka*
12.10	***Networking & Lunch***	
14.00	**Invited Speaker – Multiobjective Optimization without Scalarization: Heterogeneous Problems with Expensive Functions, Gabriele Eichfelder**	
14.50	***Networking & Coffee Break***	
15.10	Anymatrix: an extensible MATLAB matrix collection, Mantas Mikaitis	
15.35	The Continuous Stochastic Gradient Method: A NewApproach for Stochastic Optimization, Michel Stingl	
16.00	Learning in High-Dimensional Feature Spaces Using ANOVA-Based Fast Matrix-Vector Multiplication, Theresa Wagner	
16.25	***Networking & Coffee Break***	

Day Three – Friday 1st July 2022

09.00	**Invited Speaker – Robust and reliable numerical linear algebra – applications and Implementations, Zlatko Drmac**
10.00	HiGHS: Beyond the Idiot crash, Julian Hall
10.25	Convergence of Proximal Splitting Algorithms in Positively Curved Spaces, Russell Luke
10.50	Randomized Algorithms for Tikhonov Regularization in Linear Least Squares, Maike Meier
11.20	***Networking & Coffee Break***
11.45	**Invited Speaker - IFISS: A computational laboratory for investigating incompressible flow problems, David Silvester**
12.35	**Conference Ends**