

European Mathematical Society School on Mathematical Modelling, Numerical Analysis and Scientific Computing

June 15 – 20, 2025, Kácov, Czech Republic

SCHEDULE

Sunday, June 15

Time	Speaker	Title
<i>Chair: Josef Málek</i>		
19:30		Dinner
20:45		Opening and Introduction

Monday, June 16

Time	Speaker	Title
8:00		Breakfast
9:00	Olga Mula	Nonlinear dynamical approximation for forward and inverse problems – Part 1
10:10		Coffee & Refreshment
10:40	Thomas Surowiec	The Latent Variable Proximal Point method: how information geometry can provide new solvers for variational inequalities, nonlinear PDEs, and beyond – Part 1
11:50		Break
11:55	Brian Hennessy	Numerical algorithms for nonlinear wave equations via elliptic regularisation
12:05	Jennifer Zvonek	ContHutch++: Stochastic trace estimation for implicit integral operators
12:15	Ivan Gudoshnikov	Numerical simulation of a supported rail model via a non-convex sweeping process and a Prandtl-Ishlinskii hysteresis operator
12:30		Lunch & Break
15:30		Coffee & Refreshment
16:00	Johnny Guzmán	Finite element exterior calculus – Part 1
17:10		Break
17:30	Pratyush Potu	A framework for analysis of DEC approximations to Hodge-Laplacian problems using generalized Whitney forms
17:40	Jakub Čech	Traction profiles of the Turek benchmark and their relation to bifurcations for Navier-Stokes fluids
17:50	Aparna Bansal	Navier-Stokes problem with slip boundary conditions
18:00	Franziska Eickmann	Pressure-robustness for fluid flow with inhomogeneous boundary conditions
18:10	Lenka Ptáková	Discrete exterior calculus on general polygonal meshes
18:10		Break
18:30		Dinner & Pub visit



EMS SCHOOL ON MATHEMATICAL MODELLING
NUMERICAL ANALYSIS AND SCIENTIFIC COMPUTING

Sporthotel Kácov June 15 – 20, 2025
<https://ems-masc.cuni.cz/>

Tuesday, June 17

Time	Speaker	Title
8:00		Breakfast
9:00	Thomas Surowiec	The Latent Variable Proximal Point method: how information geometry can provide new solvers for variational inequalities, nonlinear PDEs, and beyond – Part 2
10:10		Coffee & Refreshment
10:40	Olga Mula	Nonlinear dynamical approximation for forward and inverse problems – Part 2
11:50		Break
11:55	Pablo Alexei Gazca Orozco	A priori and a posteriori estimates for vectorial problems via convex duality
12:05	Dalibor Lukáš	Operator preconditioning for boundary element methods on GPU
12:15	India Marsden	Redefining the finite element
12:30		Lunch & Break
15:30		Coffee & Refreshment
16:00	Daniel Kressner	Randomized linear algebra in scientific computing – Part 1
17:10		Break
17:30	José Manuel de Frutos Porras	Training implicit generative models via an invariant statistical loss
17:40	Anna Kovárnová	Scalable technique for model order reduction of systems with multiple moving particles
17:50	Robert Stephany	Reduced order modeling with higher order time derivatives
18:00	Karel Tůma	Evidence challenging the validity of the no-slip boundary condition: blood flow in vivo
18:10		Break
18:30		Dinner

Wednesday, June 18

Time	Speaker	Title
8:00		Breakfast
9:00	Daniel Kressner	Randomized linear algebra in scientific computing – Part 2
10:10		Coffee & Refreshment
10:40	Aaron Baier-Reinio	High-order finite element schemes for three-dimensional multicomponent convection-diffusion
10:50	Martin Vejvoda	Continualization of discrete lattice systems
11:00	Marc Hoffmann	A posteriori error estimates for Keller-Segel systems for finite volume schemes
11:10	Jingmin Xia	A unified tensorial theory of complex fluids and its applications
11:20	Umberto Zerbinati	Discretisation of the Helmholtz-Korteweg equation
11:45		Lunch
12:45		Organized trip to Sázava monastery or free afternoon
19:00		Dinner & Fire session

Thursday, June 19

Time	Speaker	Title
8:00		Breakfast
9:00	Johnny Guzmán	Finite element exterior calculus – Part 2
10:10		Coffee & Refreshment
10:40	Daniel Kressner	Randomized linear algebra in scientific computing – Part 3
11:50		Break
11:55	Sandra Aziz	Efficient construction of exponentially convergent harmonic spaces
12:05	Tobiáš Krupa	Discontinuous Galerkin method for solving elliptic PDE with inner interface
12:15	Sebastian-Josue Castillo Jaramillo	Robust superlinear convergence of preconditioned Newton-Krylov methods for non-linear elliptic systems
12:30		Lunch & Break
15:30		Coffee & Refreshment
16:00	Olga Mula	Nonlinear dynamical approximation for forward and inverse problems – Part 3
17:10		Break
17:30	Thomas Surowiec	The Latent Variable Proximal Point method: how information geometry can provide new solvers for variational inequalities, nonlinear PDEs, and beyond – Part 3
18:40		Break
18:45		Conference dinner

Friday, June 20

Time	Speaker	Title
7:30		Breakfast
9:00	Johnny Guzmán	Finite element exterior calculus– Part 3
10:10		Coffee & Refreshment
10:40		Discussion: perspectives, difficulties, open problems
11:55	Closing	
12:05		Lunch
13:00	Departure	