

Wednesday, September 09	
08:00 - Registration and Coffee	
08:45 Foyer Takustr. 9	
08:45 Welcome Address	
Lecture hall, Takustr. 9	
09:00 - Plenary Talk	
Petros Kourmoutsakos Chair: tba	
AI for Fluid Mechanics: Challenges and Frontiers	
Lecture hall, Takustr. 9	
10:00 - Plenary Talk	
Franziska Glasmeier Chair: Stephan Pfahl	
Multiscale Cloud Physics	
Lecture hall, Takustr. 9	
11:00 - Coffee break	
11:30 - Mini-Symposium MS 01	11:30 - Mini-Symposium MS 03-A
AI-Approaches to representing dynamics	Persistent patterns in atmospheric flows: Theoretical Meteorology
Room 005, Takustr. 9	Room 006, Takustr. 9
11:30 Stefan Chmiela	11:30 Roger Smith
Accelerating Molecular Dynamics with Implicit Machine Learning	The fluid dynamics of tropical cyclones
12:00 Hendrik H. Heenen	12:00 Annette Rudolph
From atomistic free energies to growth kinetics: ML-accelerated multiscale simulation of graphene growth on liquid copper	Atmospheric blocking patterns across the scales
12:30 Feliks Nüske	12:30 Seraphine Hauser
Consistent Projection of Langevin Dynamics: Preserving Thermodynamics and Kinetics in Coarse-Grained Models	Complementary perspectives on the role of dry and moist dynamics for atmospheric blocking formation
13:00 - Lunch break	
14:30 - Mini-Symposium MS 02	14:30 - Mini-Symposium MS03-B
Recent developments in stochastic homogenization in continuum mechanics	Persistent patterns in atmospheric flows: Computation and Data Analysis
Room 005, Takustr. 9	Room 006, Takustr. 9
14:30 Peter Bella	14:30 Ann Almgren
Stochastic homogenization of degenerate elliptic equations	Balancing Theory, Numerics and Observations in the Development of a new Regional Atmospheric Model
15:00 Stefan Neukamm	15:00 Amir Maghoul
Quantitative stochastic homogenization of elastoplastic spring networks	Numerical and asymptotic analysis of atmospheric flows on the quasi-geostrophic and Obukhov scales
15:30 Caterina Ida Zeppieri	15:30 Ingrid Hotz
The random fractional obstacle problem	Topological Feature Tracking
16:00 - Coffee break	
16:30 - Plenary Talk	
Jonathan Weare Chair: Sebastian Reich	
Estimating long-time rare-event statistics from short trajectories	
Lecture hall, Takustr. 9	
18:00 - Theatre performance: Diving into Math with Emmy Noether	
Zuse Institute, Takustr. 7	
Please join us for a performance of portraittheater vienna's mathematical play about the life of famous German mathematician Emmy Noether. Snacks and drinks provided.	

Thursday, September 10	
08:00 - Registration and Coffee	
09:00 Foyer Takustr. 9	
09:00 - Plenary Talk	
Gero Friesecke Chair: Carsten Hartmann	
High-dimensional optimal transport problems in the physical sciences	
Lecture hall, Takustr. 9	
10:00 - Plenary Talk	
Michele Ceriotti Chair: tba	
Lecture hall, Takustr. 9	
11:00 - Coffee break	
11:30 - Mini-Symposium MS 04	11:30 - Mini-Symposium MS 06-A
Quantum-based Multiscale MD	The dynamics of complex systems: Bifurcations, Multiple Time Scales and Model Reduction
Room 005, Takustr. 9	Room 006, Takustr. 9
11:30 Paolo Carloni	11:30 Christian Kuehn
QM/MM MD simulations of proton-coupled transporters	Towards Geometric Singular Perturbation Theory for PDEs
12:15 Daniele Passerone	12:00 Grigoris Pavliotis
ML Potentials and Enhanced Sampling: A Powerful Strategy for Nanoscience Modelling	On the Diffusive-Mean Field limit of Kinetic Interacting Particle Systems
	12:30 Sebastian Wiecek
	Singular Basins of Attraction in Multiscale Systems
13:00 - Lunch break	
14:30 - Mini-Symposium MS 05	14:30 - Mini-Symposium MS 06-B
Generative diffusion models and normalising flows	The dynamics of complex systems: Bifurcations, Multiple Time Scales and Model Reduction
Room 005, Takustr. 9	Room 006, Takustr. 9
14:30 Andrew Duncan	14:30 Vaishnavi Jayakumar
Diffusion Paths for Sampling: From Stochastic Averaging to Sequential Monte Carlo	The Physics of Political Change: Diffusion, Stability, and Regime Dynamics
15:00 Manfred Opper	15:00 Narcicegi Kiran
Generative diffusion models with fractional Brownian noise	Network Recoverability under Aggregation and Smoothing
15:30 Claudia Strauch	15:30 Ralph Gregor Andrzejak
Diffusion modelling beyond Ornstein–Uhlenbeck: statistical analysis of random stopping and reflections	Effective directional interdependence in homogeneous non-directionally coupled networks – a simple model and analogies to neuronal dynamics
16:00 - Coffee break	
16:30 - Plenary Talk	
Rupert Klein Chair: Marita Thomas	
12 Years of CRC 1114	
Lecture hall, Takustr. 9	
18:00 - Poster Buffet	
Greenhouse, Takustr. 9	
Please join us for food, drinks, posters and conversations.	

Friday, September 11	
08:00 - Registration and Coffee	
09:00 Foyer Takustr. 9	
09:00 - Plenary Talk	
John Bell Chair: Ana Djurdjevac	
Between Kinetic Theory and Navier-Stokes - Modeling Fluids at the Mesoscale	
Lecture hall, Takustr. 9	
10:00 - Plenary Talk	
Viktoriya Yarushina Chair: Timm John	
Coupled Deformation, Flow, Reaction and Heat in Geological Systems: From First Principles to Predictive Models	
Lecture hall, Takustr. 9	
11:00 - Coffee break	
11:30 - Mini-Symposium MS 07	11:30 - Mini-Symposium MS 09-A
Thermo-dynamics across scales	Multiscale Processes in Geodynamics
Room 005, Takustr. 9	Room 006, Takustr. 9
11:30 Martin Hanke	11:30 Xin Zhong
Data driven parameterizations of multidimensional generalized Langevin equations	Modelling metamorphic and magmatic mineral evolution with machine-learning interatomic potentials and phase-field methods
12:00 Christopher J. Stein	12:00 Ludmila Khakimova
Variational inference of free energy differences in strongly coupled open systems	Chemically- and pressure-driven metamorphic (de)volatilization processes: front-tracking analytics
12:30 Johannes Zimmer	12:30 Alexander Koelzer
Learning thermodynamic evolution from particles	From Millions of Years to Milliseconds – Earthquake sequence simulations in complex tectonic settings
13:00 - Lunch break	
14:30 - Mini-Symposium MS 08	14:30 - Mini-Symposium MS 09-B
Nonlinear SPDEs for Fluctuations in Interacting Particle Systems	Multiscale Processes in Geodynamics
Room 005, Takustr. 9	Room 006, Takustr. 9
14:30 Federico Cornalba	14:30 Simon Boisserée
A discontinuous Galerkin approximation of the Dean-Kawasaki equation	Space-time adaptivity and preconditioning for porous media flow models
14:50 Rishabh Gvalani	15:00 Fan Cheng
Ergodicity of McKean-Vlasov equations with common noise	Analysis of geodynamical viscoelastoplastic flows -- From porescale to macroscale
15:10 Helena Kremp	15:30 Javier Garcia-Pintado
Stochastic homogenisation for Dean-Kawasaki-type SPDEs	Tectonic-scale patterns of viscoelastoplastic deformation subject to hydrothermal circulation
15:30 Max von Renesse	
Well-posedness for Dean–Kawasaki models of Vlasov–Fokker–Planck type	
16:00 Closing words & Coffee Break	