



## 2024 PETSc ANNUAL MEETING



Center for  
Data and  
Simulation  
Science

May 23–24, 2024  
Center for Data and Simulation Science  
University of Cologne  
Cologne, Germany



**UNIVERSITY  
OF COLOGNE**

Thursday – May 23		Chair
09:00 – 09:50	<i>Introduction</i>	
09:50 – 10:15	<b>Hong Zhang:</b> Semi-implicit Neural ODEs using PETSc TSAjoint	A. Klawonn
10:15 – 10:40	<b>Janine Weber:</b> A Domain Decomposition-Based CNN-DNN Architecture for Model Parallel Training Applied to Image Recognition Problems	A. Klawonn
10:40 – 11:10	<i>30 Minute Coffee Break</i>	
11:10 – 11:35	<b>Pierre Jolivet:</b> Recent advances in adaptive overlapping domain decomposition preconditioners in PETSc	J. Weber
11:35 – 12:00	<b>Jose E. Roman:</b> Structured eigenproblems with SLEPc	J. Weber
12:00 – 12:25	<b>Zoe Leibowitz:</b> Building Automatic PETSc Code Generation into Devito	J. Weber
12:25 – 12:50	<b>Pablo D. Brubeck:</b> Patch solvers for high-order FEM on simplices	J. Weber
12:50 – 14:00	<i>70 Minute Lunch Break</i>	
14:00 – 14:25	<b>Thorsten Bläß:</b> OpenMP Target Offloading for AMD GPUs	M. Knepley
14:25 – 14:50	<b>Clément Guillet:</b> Low-order preconditioner with a Reduced Order Modeling based Inexact FETI-DP smoother for isogeometric analysis of lattices	M. Knepley
14:50 – 15:15	<b>Carsten Burstedde:</b> The p4est software library: parallel adaptive mesh topology for PETSc	M. Knepley
15:15 – 15:40	<b>Jack Betteridge:</b> Cleaning up distributed PETSc objects in managed languages and applications in extremely large scale simulations	M. Knepley
15:40 – 16:10	<i>30 Minute Coffee Break</i>	
16:10 – 16:35	<b>Umberto Zerbinati:</b> ngsPETSc: NETGEN/NGSolve meets PETSc	T. Isaac
16:35 – 17:00	<b>Boris Kaus:</b> Precompiled binary distributions of PETSc and integration with Julia	T. Isaac
17:00	<i>Poster Session</i>	
19:30	<i>Dinner (Brauerei Päßgen)</i>	

Friday – May 24		Chair
09:00 – 09:25	<b>Mark F. Adams:</b> Kinetic methods support in PETSc	P. Jolivet
09:25 – 09:50	<b>Darsh Nathawani:</b> Raviart-Thomas Elements For The Mixed Poisson Problem	P. Jolivet
09:50 – 10:15	<b>Serge Van Criekingen:</b> Merged Q1 Coarse Spaces for Schwarz Methods	P. Jolivet
10:15 – 10:40	<b>Jeremy L. Thompson:</b> PETSc with libCEED – Performance Portable Matrix-Free Operators	P. Jolivet
10:40 – 11:10	<i>30 Minute Coffee Break</i>	
11:10 – 11:35	<b>Matthew G. Knepley:</b> Mesh Transformations in PETSc	M. Lanser
11:35 – 12:00	<b>Boris Martin:</b> Efficient Simulation of Multiple Sources Time-Harmonic Waves With Substructured Domain Decomposition Methods And Block Krylov Methods	M. Lanser
12:00 – 12:25	<b>Nils Friess:</b> Implementing a Multigrid Monte Carlo sampler in PETSc	M. Lanser
12:25 – 13:35	<i>70 Minute Lunch Break</i>	
13:35 – 14:00	<b>Joseph Pusztay:</b> Improvements to particle support in PETSc with DMSwarm	O. Rheinbach
14:00 – 14:25	<b>Bas Symoens:</b> ResQPASS: An Algorithm for Bounded Variable Linear Least Squares with Asymptotic Krylov Convergence	O. Rheinbach
14:25 – 14:50	<b>Tommaso Bevilacqua:</b> Efficient parallel finite element simulation of laser beam welding processes	O. Rheinbach
14:50	<i>Farewell &amp; Beverages</i>	