



SAINT-GIRONS CONFERENCE

GENERATING IDEAS FOR A NUMERICAL WORLD

June 29 - July 3, 2026

Preliminary Programme

Monday 29th June	10:00 - 16:00	Workshop on Quantum Computing organized jointly with Fondation N7-Dev in Toulouse.
	19:00	Welcome reception in Saint-Girons
		Main themes: Quantum Computing and Data Science
	09:00 - 09:45	Marc Baboulin (INRIA and Université Paris-Saclay), invited speaker <i>Toward hybrid quantum-classical linear algebra solvers</i>
	09:45 - 10:15	Simon Martiel (IBM Quantum), invited speaker <i>Quantum advantage with confidence</i>
	10:15 - 10:45	Coffee break
	10:45 - 11:15	Julien Zylberman (CERFACS) <i>Quantum algorithm for anisotropic diffusion and convection equations with vector norm scaling</i>
	11:15 - 11:30	Youssef Achari Berrada (FAU and CERFACS) <i>Enabling the solution of PDEs using Quantum Neural Networks and novel Trainable Frequency Feature Maps</i>
	11:30 - 11:45	Siwar Badreddine (CERFACS) <i>An Optimal Framework for Constructing Lie-Algebra Generator Pools: Application to Variational Quantum Eigensolvers for Chemistry</i>
	11:45 - 12:00	Jean-Philippe Valois (Université de Lille) <i>Scalable Parallel Branch-and-Bound for Optimal Qubit Mapping</i>
	12:00 - 13:30	Lunch
		Main themes: Artificial Intelligence and Data Science
Tuesday 30th June	13:30 - 14:15	Rick Stevens (Argonne National Laboratory, University of Chicago), keynote speaker <i>Agentic Science and the DOE Genesis Mission</i>
	14:15 - 14:45	Alena Kopanicakova (Toulouse-INP), invited speaker <i>Training of Deep Neural Networks Using Multilevel and Domain-Decomposition Methods</i>
	14:45 - 15:15	Sherry Li (Lawrence Berkeley National Laboratory) <i>Domain-aware Gaussian Process for Quantitative Learning in Scientific Computing</i>
	15:15 - 15:45	Coffee break
	15:45 - 16:00	Florin Dobrian (Conviva) <i>Commoditizing Combinatorial Code through Large Language Models: A Maximum Cardinality Matching Case Study</i>
	16:00 - 16:15	Hans Johansen (Lawrence Berkeley National Laboratory) <i>Adaptive Mesh Higher-Order Embedded Boundary Algorithms</i>
	16:15 - 16:30	Takanori Kotama (Nagoya University) <i>HPC-AutoResearch: An Agentic Research System for HPC Through Split-Phase Execution</i>
	16:30 - 16:45	Sixin Zhang (IRIT) <i>Supervised and unsupervised learning for Data assimilation</i>
	17:00 - 18:00	Poster blitz (two minute presentation per poster)
	18:00 - 19:00	Formal poster session with all posters manned for last hour of schedule. Posters will also be kept up all week, and accessible during breaks.
		Main themes: HPC and Numerical Linear Algebra
Wednesday 1st July	09:00 - 09:45	Jack Dongarra (Innovative Computing Laboratory), keynote speaker <i>HPC in Transition</i>
	09:45 - 10:00	David Goudin (Bull) <i>Grand Cru Project: Bull's strategy to develop expertise and innovation for the synthetic benchmarks</i>
	10:00 - 10:15	Joost Rommes (NVIDIA) <i>Accelerated linear algebra on AI-era GPUs</i>
	10:15 - 10:30	Alexis Montoisson (AMD) <i>Krylov.jl: Empowering Performance and Portability in High-Performance Computing</i>
	10:30 - 10:45	Miroslav Tuma (Charles University) <i>Avoiding the Normal Equations: Row-Splitting ILU Preconditioners for Sparse Least Squares</i>
	10:45 - 11:15	Coffee break
	11:15 - 12:00	Satoshi Matsuoka (Riken Center for Computational Science), keynote speaker Presentation to be announced
	12:00 - 12:15	Michaël Krajecki (GENCI) Presentation to be announced
	12:15 - 12:30	Alfredo Buttari (CNRS-IRIT). <i>The NumPEX French PEPR Research Program.</i>
	12:30 - 12:45	Biswajeet Rath (IRIT-INP Toulouse) <i>Analyzing the use of accelerators and mixed precision algorithms on the performance of sparse direct solvers</i>
	12:45 - 13:00	Youssef Aly (Siemens Industry Software Egypt) <i>Design and Implementation of a Reduced and Mixed Precision AMG Solver on GPUs for Large Industrial Circuit Verification Tasks</i>
	13:00 - 13:15	Marc Marot-Lassauzaie (TUM) <i>A mixed- and variable-precision implementation of Discontinuous Galerkin solvers</i>
	13:15 - 14:45	Lunch
		Touristic and other activities in the afternoon followed by the gala dinner.



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Thursday 2nd July	09:00 - 09:45 Per-Gunnar Martinsson (The University of Texas at Austin, ILAS Keynote Speaker) <i>Randomized Linear Algebra at Scale: From Sketches to Operators</i>
	09:45 - 10:00 Andy Wathen (Rutherford Appleton Laboratory) <i>Self-adjointness and complex eigenvalues of a real nonsymmetric matrix</i>
	10:00 - 10:15 Philip Knight (University of Strathclyde) <i>A Framework for Fast Balancing</i>
	10:15 - 10:30 Julien Langou (University of Colorado Denver) <i>Variations on an algorithm to compute the Q factor after a Householder QR factorization</i>
	10:30 - 10:45 Sri Hari Krishna Narayanan (Argonne National Laboratory) <i>diffblas and difflapack: derivatives of BLAS and LAPACK routines</i>
	10:45 - 11:00 Jean-Claude Yakoubsohn (Institut de Mathématiques de Toulouse) <i>Unified Newton's Method For Matrix Decompositions</i>
	11:00 - 11:30 Coffee break
	11:30 - 12:00 Mike Saunders (Stanford University), invited speaker <i>MinAres: An Iterative Solver for Symmetric Linear Systems</i>
	12:00 - 12:15 Petr Tichy (Charles University) <i>On Dubrulle's Block Conjugate Gradient Method</i>
	12:15 - 12:30 Gérard Meurant (retired) <i>Block conjugate gradient methods for least squares problems</i>
	12:30 - 12:45 Bastien Vieublé (Academy of Mathematics and Systems Science). <i>A comparison of the convergence rates of iterative refinement and GMRES.</i>
	12:45 - 13:00 Stephen Thomas (Lehigh University) <i>Spectral Measures, Christoffel Functions, and Edge Instability in Krylov Methods</i>
	13:00 - 13:15 Oussama Mouhtal (CERFACS, Montréal Polytechnique) <i>A Spectral Preconditioner for the Conjugate Gradient Method with Iteration Budget</i>
	13:15 - 14:30 Lunch
	14:30 - 15:15 Eulogies to Cleve Moler
	15:15 - 15:30 Alex Pothen (Purdue University) <i>A Half Century of Algorithm Design: The Matching Story</i>
	15:30 - 15:45 Bob Lucas (Synopsys) <i>Porting multifrontal computations to GPUs using the OpenMP API</i>
	15:45 - 16:00 Esmond Ng (Lawrence Berkeley National Laboratory) <i>On Solving General Sparse Symmetric Linear Systems</i>
	16:00 - 16:15 Edgar Solomonik (University of Illinois Urbana-Champaign) <i>Sparse LDL, LU, and Inverse Butterfly Factorization via Tree Decomposition</i>
	16:15 - 16:45 Coffee break
	16:45 - 17:30 Sven Leyffer (Argonne National Laboratory), keynote speaker <i>Unifying nonlinearly constrained optimization</i>
	17:30 - 18:00 Hussam Al Daas (STFC, Rutherford Appleton Laboratory), invited speaker <i>Extended-Krylov-subspace methods for trust-region and norm-regularization subproblems</i>
	18:00 - 18:15 Jennifer Scott (University of Reading and STFC Rutherford Appleton Laboratory) <i>How Low Can You Go? Mixed-Precision Incomplete Factorization Preconditioners for Sparse Least-Squares Problems</i>
	18:15 - 18:30 Thomas Bake (Charles University) <i>Forward and backward error bounds for a mixed precision preconditioned conjugate gradient algorithm</i>
	18:30 - 18:45 Joanna Bisch (INRIA) <i>Bridging the gap between Adaptive Cross Approximation (ACA) and Rank-Revealing LU: a path for BLAS3 ACA</i>
	18:45 - 19:00 Antoine Jego (Sorbonne Université) <i>Memory Accessor for Mixed Precision GMRES-Based Iterative Refinement</i>



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Friday 3rd July	09:00 - 09:30 Francoise Tisseur (University of Manchester), invited speaker <i>Computing Accurate Eigenvalues and Singular Values Using Mixed-Precision Algorithms</i>	
	09:30 - 09:45 Alycia Lisito (Bull) <i>Exploiting recursive tasks to submit data dependent graph for the LU factorization with partial pivoting</i>	
	09:45 - 10:00 Brieuc Nicolas (INRIA) <i>Series of tensor contractions with an STF runtime</i>	
	10:00 - 10:15 Matthieu Robeyns (IRIT) <i>A parallel approach for solving the Green's function based on the nested-dissection and selected-inverse methods</i>	
	10:15 - 10:30 Aydin Buluc (NVIDIA) <i>GPU-Accelerated Direct and Iterative Sparse Linear Solvers</i>	
	10:30 - 11:00 Coffee break	
	11:00 - 11:15 Petr Vacek (IRIT) <i>Multigrid methods with approximate coarsest-level solvers</i>	
	11:15 - 11:30 Jun Cao (Toronto Metropolitan University) <i>An Immersed-Boundary-Based Framework for Study of Tornado Dynamics</i>	
	11:30 - 11:45 Sophie Moufawad (American University of Beirut) <i>Direct and Inverse Problem for Gas Diffusion in Polar Firm</i>	
	11:45 - 12:00 Suraj Kumar (Inria, Lyon) <i>Communication Lower Bounds and Algorithms for Sketching with Random Dense Matrices</i>	
	12:00 - 12:30 Serge Petiton (Paris), invited speaker <i>Distributed and Parallel Sparse Matrix Computation in the Age of AI</i>	
	12:30 - 14:00 Lunch	
	People who can stay later can benefit from the renowned hospitality of the people of Saint-Girons as has happened in earlier meetings. (This would be later on Friday and into the weekend.)	