

Schedule: Jan 29 – Feb 2, 2007

MSRI: Interactive Parallel Computation in Support of Research in Algebra, Geometry and Number Theory

Monday, Jan 29

	Theme: What do we want and what can we expect from applying parallel techniques to pure mathematics research tools?
9:00–10:00	Pernet - Parallelism perspectives for the LinBox library
10:00–10:30	Tea Break
10:30–11:30	Granger - Interactive Parallel Computing using Python and IPython
11:30–12:30	Roch - Processor oblivious parallel algorithms with provable performances: applications
12:30–1:30	Lunch
1:30–2:00	Cohn - Parallel Computation Tools for Research: A Wishlist (part 0)
2:00–2:30	Cohn - Parallel Computation Tools for Research: A Wishlist (part 1)
2:30–3:30	Discussion: Parallel methods for mathematics software for doing algebra, geometry and number theory – What can we expect? What are the right problems to attack first and get the most for our work?
3:30–4:00	Tea Break
4:00–5:30	Working Sessions
6:00–8:00	Dinner
8:00–10:00	Coffee Shops...

Tuesday, Jan 30

	Theme: Algebra
9:00–10:00	Yelick - Programming Models for Parallel Computing
10:00–10:30	Tea Break
10:30–11:30	Hida - Moving Lapack and ScaLapack to Higher Precision without Too Much Work
11:30–12:30	Noel - Structure and Representations of Real Reductive Lie Groups: A Computational Approach
12:30–1:30	Lunch
1:30–2:00	(Optional) Leykin - Parallel computation of Grobner bases in the Weyl algebra
2:00–2:30	(Optional) Tonchev - Combinatorial designs and code synchronization
2:30–3:30	Discussion: Parallel methods for algebra (commutative algebra, linear algebra, group theory).
3:30–4:00	Tea Break
4:00–5:30	Working Sessions
6:00–8:00	Dinner
8:00–10:00	Coffee Shops...

Wednesday, Jan 31

	Theme: Number Theory
9:00–10:00	Martin - MPMPLAPACK: The Massively Parallel Multi-Precision Linear Algebra Package
10:00–10:30	Tea Break
10:30–11:30	Hart - Parallel Computation in Number Theory
11:30–12:30	Qiang - Distributed Computing using SAGE
12:30–1:30	Lunch
1:30–2:00	(Optional) Bradshaw - Loosely Dependent Parallel Processes
2:00–2:30	(Optional) Kotsireas - Combinatorial Designs: constructions, algorithms and new results
2:30–3:30	Discussion: Parallel methods for number theory.
3:30–4:00	Tea Break
4:00–5:30	Working Sessions
6:00–8:00	Dinner
8:00–10:00	Coffee Shops...

Thursday, Feb 1

	Theme: Geometry
9:00–10:00	Vershelde - Parallel Homotopy Algorithms to Solve Polynomial Systems
10:00–10:30	Tea Break
10:30–11:30	Moreno Maza - Component-level Parallelization of Triangular Decompositions
11:30–12:30	Bailey - Experimental Mathematics and High-Performance Computing
12:30–1:30	Lunch
1:30–2:00	(Optional) Wolf - Parallel sparsening and simplification of systems of equations
2:00–2:30	(Optional) Wolf - Parallel sparsening and simplification of systems of equations
2:30–3:30	Discussion: Parallel methods for geometry
3:30–4:00	Tea Break
4:00–5:30	Working Sessions
6:00–8:00	Dinner
8:00–10:00	Coffee Shops...

Friday, Feb 2

	Theme: Large-Scale Parallel Computation
9:00–10:00	Harrison - Science at the petascale: tools in the tool box
10:00–10:30	Tea Break
10:30–11:30	Cooperman - Disk-Based Parallel Computing: A New Paradigm
11:30–12:30	Edelman - Interactive Parallel Supercomputing: Today: MATLAB(r) and Python coming Cutting Edge: Symbolic Parallelism with Mathematica(r) and MAPLE(r)
12:30–1:30	Lunch
1:30–2:00	(Optional) Khan - Game Theoretical Solutions for Data Replication in Distributed Computing Systems
2:00–2:30	Break
2:30–3:30	Discussion: Wrap-up session