

Big Data Meets Computation

Monday January 30, 2017

- 8:00–8:55 *Check-In/Light Breakfast (Hosted by IPAM)*
- 8:55–9:00 *Welcome and Opening Remarks*
- 9:00–9:50 **Frank Jenko** (University of California, Los Angeles (UCLA))
Predictive Plasma Simulations at the Exascale: Scalable Algorithms for HPC and Data Analytics
- 10:00–10:15 *Break*
- 10:15–11:05 **Hans-Joachim Bungartz** (Technical University Munich (TUM))
Notions of Efficiency – the Role of Algorithm and Performance Engineering
- 11:15–11:30 *Break*
- 11:30–12:20 **Rick Archibald** (Oak Ridge National Laboratory)
Sparse sampling methods for large scale experimental data
- 12:30–2:30 *Lunch (on your own)*
- 2:30–3:20 **Alan Lee** (AMD)
Big Compute: Under the Hood
- 3:30–4:00 *Break*
- 4:00–4:50 **Tom Abel** (Stanford University)
Making Sense of our Universe with Supercomputers
- 5:00–6:30 *Poster Session & Reception (Hosted by IPAM)*

Tuesday January 31, 2017

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00–9:50 **Joachim Buhmann** (ETH Zürich)
Resilient algorithmics: How much relevant information can be extracted from my data?
- 10:00–10:15 *Break*
- 10:15–11:05 **George Biros** (University of Texas at Austin)
Scalable approximation algorithms for kernel matrices
- 11:15–11:30 *Break*

(Tuesday schedule continued on next page)



(Tuesday schedule continued from previous page)

- 11:30–12:20 **Frank Wuerthwein** (University of California, San Diego (UCSD))
Big Data at the LHC
- 12:30–2:00 *Lunch (on your own)*
- 2:00–2:50 **Claudia Draxl** (Humboldt-Universität)
From high-performance computing to big-data analytics of materials science and back
- 3:00–3:15 *Break*
- 3:15–4:05 **Clayton Webster** (Oak Ridge National Laboratory)
Polynomial approximation via compressed sensing of high dimension systems
- 4:15–4:30 *Break*
- 4:30–5:20 **Stan Osher** (Institute for Pure and Applied Mathematics)
Accurate reconstruction of sparsely sub sampled data

Wednesday February 1, 2017

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00–9:50 **Tomo-Hiko Watanabe** (Nagoya University)
Data communications and analysis in simulation of plasma turbulence on a five-dimensional phase space
- 10:00–10:15 *Break*
- 10:15–11:05 **Thomas Hou** (California Institute of Technology)
Localized operator compression for elliptic operators
- 11:15–11:30 *Break*
- 11:30–12:20 **Gregory Beylkin** (University of Colorado Boulder)
Representations of operators in MADNESS (Multiresolution ADaptive Numerical Environment for Scientific Simulation)
- 12:30–2:00 *Lunch (on your own)*
- 2:00–2:50 **Shi Jin** (University of Wisconsin-Madison)
Solving Multiscale Kinetic Equations with Uncertainty by Asymptotic-Preserving Methods with Sparse Grids.
- 3:00–3:15 *Break*
- 3:15–4:05 **Jianfeng Lu** (Duke University)
Stochastic algorithms for high dimensional PDEs
- 4:15–4:30 *Break*
- 4:30–5:20 **Lexing Ying** (Stanford University)
Tensor network skeletonization

Thursday February 2, 2017

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00–9:50 **Volker Markl** (Technische Universität Berlin)
Scalable Data Science and Apache Flink: Key Challenges and (Some) Solutions
- 10:00–10:15 *Break*
- 10:15–11:05 **Dirk Pflüger** (Universität Stuttgart)
Scalability and Algorithm-Based Fault Tolerance for Plasma Physics Simulations with GENE
- 11:15–11:30 *Break*
- 11:30–12:20 **Tamara Kolda** (Sandia National Laboratories)
An Overview of Tensor Decompositions for Data Analysis, with Emphasis on Computation and Scalability
- 12:30–2:30 *Lunch (on your own)*
- 2:30–3:20 **Francois Gygi** (University of California, Davis (UC Davis))
Compression algorithms for Electronic Structure Computations
- 3:30–3:45 *Break*
- 3:45–4:35 **Eric Sonnendruecker** (Max-Planck-Institut)
Vlasov simulations in 6D phase space based on compressed data formats

Friday February 3, 2017

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00–9:50 **Jeffrey Hittinger** (Lawrence Livermore National Laboratory)
Making Every Bit Count: Variable Precision?
- 10:00–10:15 *Break*
- 10:15–11:05 **Shenshen Wang** (University of California, Los Angeles (UCLA))
Bridging big data and small data: a new effort in immunophysics
- 11:15–11:30 *Break*
- 11:30–12:20 **Jaime Marian** (University of California, Los Angeles (UCLA))
Physics-based modeling of materials and uncertainty quantification as drivers for exascale computing
- 12:30–2:30 *Lunch (on your own)*
- 2:30–4:00 *Open Discussion*

