

April 2023 Princeton

82nd HPC User Forum Agenda

Tuesday, April 18th, 2023

(Morning Session Leader: Paul Muzio, Chair, HPC User Forum Steering Committee)

- 7:30 – 8:30 am** Breakfast and Badging
- 8:30 – 9:00 am** Welcome and Meeting Overview
- Welcome & Logistics, Earl Joseph, Paul Muzio, and Rupak Biswas
 - HPC Market Update, *Earl Joseph, CEO, Hyperion Research*
- 9:00 – 9:30 am** The Evolution of Robotics, AI/ML, and Nuclear Fusion: Past, Present, Future, *Paul Muzio, Chair, HPC User Forum*
- 9:30 – 10:00 am** Massive Scale Analytics for Real-World Applications, *David Bader, Distinguished Professor, Data Science, NJIT*
- 10:00 – 10:30 am** Magnetohydrodynamic Modeling at Various Scales: From the Turbulent Solar Corona to the Coupled Earth-Moon System, *Chuanfei Dong, Assistant Professor, Boston University*
- 10:30 – 10:45 am** Vendor Technology Update: HPE
- 10:45 – 11:00 am** Break
- 11:00 – 11:30 am** Analyzing Streaming Data in Real-Time Without Central Control, *John Feo, Director of the Center for Adaptive Supercomputer Software PNNL*
- 11:30 – 12:00 pm** LAMMPS, AI/ML Interatomic Potentials, And Leadership HPC Platforms: An Effective Approach for Modeling Fusion Materials, *Aidan Thompson, Distinguished Member of Technical Staff, SNL*
- 12:00 – 1:00 pm** Lunch
- (Afternoon Session Leader: David Martin, HPC User Forum Steering Committee)
- 1:00 – 1:30 pm** The Intersection of HPC and AI & Modern Magnetic Fusion Energy Development, *William Tang, Principal Research Physicist, Princeton Plasma Physics Laboratory (PPPL)*
- 1:30 – 1:45 pm** Vendor Technology Update: Dell Technologies
- 1:45 – 2:15 pm** Princeton Plasma Physics Laboratory Update (video), *William Dorland, Associate Laboratory Director for Computational Science, Princeton Plasma Physics Laboratory (PPPL)*
- 2:15 – 2:45 pm** Simulations Towards an Aneutronic Fusion Pilot Plant, *Sean Dettrick, Director of Computational Sciences, TAE Technologies*
- 2:45 – 3:15 pm** Radiation Transport Modeling, *Luca Longoni, HPC Technical Lead, Fed Data Technology Systems (FDTS)*
- 3:15 – 3:30 pm** Break
- 3:30 – 4:00 pm** Fusion Panel Discussion, Moderator: *David Martin, Manager, Industry Partnerships and Outreach, ANL*
- 4:00 – 4:15 pm** Vendor Technology Update: Intel
- 4:15 – 5:00 pm** Volatiles Investigating Polar Exploration Rover, *Daniel Andrews, Project Manager, NASA*
- 5:00 – 5:30 pm** Break
- 5:30 pm** Board Buses to The Special Dinner Event
- 6:00 – 8:30 pm** Special Event: Grounds of Sculpture and Dinner

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82nd HPC User Forum Agenda

Wednesday, April 19th, 2023

(Morning Session Leader: Mark Stickells, HPC User Forum Steering Committee)

7:30 – 8:25 am Breakfast

8:25 – 8:30 am Welcome and Logistics Earl Joseph and Paul Muzio

8:30 – 9:00 am Quantum Computing and AI, *Salvatore Mandrà, Research Scientist, Quantum AI, NASA*

9:00 – 9:30 am Quantum Science Center Update, *Travis Humble, Director, Quantum Science Center, ORNL*

9:30 – 10:00 am Accelerating Scientific Machine Learning with Novel AI Systems, *Murali Krishna Emami, Assistant Computer Sciences, Data Sciences, ANL*

10:00 – 10:30 am Break

10:30 – 11:00 am The Path to Exascale HPC, Quantum Computing and the Square Kilometre Array (SKA): An Update from Australia, *Mark Stickells, Executive Director, Pawsey Supercomputing Research Centre*

11:00 – 11:30 am Site Update: NYU Langone HPC Medical Research Center, *Michael Costantino, Director, HPC, NYU Langone*

11:30 – 12:15 pm Innovative Technologies Short Presentations: Covalent, DDN, Panasas, Penguin Solutions, IBM, and VAST Data

12:15 – 1:15 pm Lunch

(Afternoon Session Leader: Simon Burbidge, HPC User Forum Steering Committee)

1:15 – 1:45 pm Exascale Machine Learning Technologies, *Sudip Seal, Senior Scientist, ORNL*

1:45 – 2:00 pm Vendor Technology Update: Lenovo

2:00 – 2:30 pm Site Update - Princeton University, *Curtis Hillegas, Associate CIO, Princeton University*

2:30 – 3:00 pm Break

3:00 – 3:15 pm Discussion: What Can the HPC User Forum do to Help Advance the HPC Community, Technologies, and Markets? Earl Joseph, CEO, Hyperion Research

3:15 – 3:45 pm HPC Site Update: Flatiron Institute, *Ian Fisk, Co-Director Scientific Computing, Flatiron Institute*

3:45 – 4:15 pm New Directions in HPC Storage and Interconnects, *Mark Nossokoff, Research Director, Hyperion Research*

4:15 – 4:45 pm Using HPC for the Modeling of Galaxy Formation and Evolution, *Molly Peebles, Research Scientist, JHU STSI*

4:45 – 5:00 pm Conclusions, Paul Muzio, Rupak Biswas and Earl Joseph

5:00 – 6:30 pm Break

6:30 – 8:30 pm Dinner (on-site): Network and Socializing Time

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