New Computing Technologies (QC, AI/ML)

Program for 15 November 2022

Quantum Computing (QC)

15:20 Kyle Wendt – Overview – 15 min
15:35 Joe Carlson – 5 min
15:40 Gautam Rupak – 5 min (via Zoom)
15:45 James Vary – 5 min (via Zoom)
15:50 Discussion – 20 min
16:10 End of QC part

Artificial Intelligence/Machine Learning (AI/ML)

16:15 Michelle Kuchera – Overview – 15 min
16:30 Yue Hao – 5 min (via Zoom)
16:35 Alessandro Lovato – 5 min (via Zoom)
16:40 Witek Nazarewicz – 5 min
16:45 Michael Smith – 5 min (via Zoom)
16:50 James Vary – 5 min (slides presented by Dean Lee)
16:55 Xilin Zhang – 5 min
17:00 Discussion – 20 min
17:20 End of AI/ML part

Draft of Resolution 3:

High-performance computing (HPC) is essential to advance all fields of nuclear physics. We recommend investments in computational nuclear physics to accelerate discoveries and maintain U.S. leadership by:

- Strengthening programs and partnerships to ensure the efficient utilization of new HPC hardware and new capabilities and approaches offered by AI/ML and quantum computing (QC);

- Establishing programs that support the education and training of a diverse and multidisciplinary workforce with cross-disciplinary collaborations in HPC, AI/ML, and QC;

- Expanding access to dedicated hardware and resources for HPC and new emerging computational technologies.

Questions for Discussion:

- What is the progress since the 2015 LRP?
- What are the scientific challenges?
- What are the scientific opportunities?
- What are the resources needed?
- What international coordination and collaborations are possible?
- What interagency coordination and collaboration would be useful?
- What synergies and opportunities are possible with neighboring research disciplines?

Events

Quantum Information Science for US Nuclear Physics Long Range Planning – 2022

Organizing Committee: Douglas Beck (UIUC), Joe Carlson (LANL), Zohreh Davoudi (U of Maryland), Joe Formaggio (MIT), Sofia Quaglioni (LLNL), Martin Savage (UW)

This meeting will gather experts to consider the current state of quantum information science in nuclear physics research. It is expected to provide information to be considered during the current nuclear physics long-range planning process.

This workshop is jointly-sponsored by Los Alamos National Laboratory (LANL) and the InQubator for Quantum Simulation (IQuS), and will be held in the Hilton Hotel in Santa Fe. The New Mexico Consortium (NMC) has kindly agreed to handle the logistics.

To register for this event : REGISTRATION

DATE
Jan 31 2023 - Feb 01 2023

TIME
8:00 am - 6:00 pm

LOCATION
Hilton Hotel Santa Fe

CATEGORY
Workshops