

Advances in Many-Body Theories: from First Principle Methods to Quantum Computing and Machine Learning

Monday, 2 November 2020 - Friday, 6 November 2020

Scientific Programme

Monday November 2 Machine Learning and Quantum Computing

4pm-410pm Welcome by ECT* Director Jochen Wambach,

410-430pm Francesco Pederiva, University of Trento (UniTn), Quantum @ Trento (15+5)

430-515pm Natalie Klco, Caltech, Musings on the Intersimulatability of Quantum Fields (30+15)

515pm-6pm Witek Nazarewicz, Michigan State University (MSU), Bayesian Model Mixing: Nuclear Physics Applications (30+15)

Discussion moderators: Francesco Pederiva (UniTn), Martin Savage, Morten Hjorth-Jensen (chair), and Thomas Papenbrock.

Tuesday November 3 Machine Learning and Quantum Computing

4-445pm Phiala Shanahan, MIT, Machine Learning for Lattice Field Theory, (30+15)

5-545pm Zohreh Davoudi, University of Maryland, Nuclear Physics Entering a Quantum-simulation Era: Lessons from the Past, Vision for the Future (30+15)

Discussion moderators: Stefano Gandolfi, Thomas Papenbrock (chair).

Wednesday November 4 Machine Learning

4-445pm Giuseppe Carleo, EPFL Lausanne, Variational Methods in the Era of Machine Learning: Classical and Quantum Computing Applications (30+15)

445-530pm Alessandro Lovato, Argonne National Laboratory and UniTn, Neural Network Quantum States for Atomic Nuclei (30+15)

530-545pm James Keeble, University of Surrey, Towards a Machine Learning Description of Nuclei (10+5)

545-6pm Krishnan Raghavan, Argonne National Laboratory, Phys-NN -- A Machine Learning Approach to Invert Nuclear Responses (10+5)

Discussion moderators: Arnau Rios, University of Surrey and University of Barcelona, Gaute Hagen (chair), and Morten Hjorth-Jensen

Thursday November 5 Quantum Computing and the ECT*

4-445pm Philipp Hauke, UniTn, Quantum Simulating Lattice Gauge Theories – High-energy Physics at Ultra-cold Temperatures (30+15)

4.45-530pm Kyle Wendt, Lawrence Livermore National Laboratory, Prospects for Near Term Quantum Simulations through Optimal Control (30+15)

530-6pm Daniele Binosi, ECT, and Tommaso Calarco Juelich, The European Quantum Flagship and the ECT* (20+10)

Discussion moderators: Martin Savage (chair) and Sandro Stringari, UniTn

Friday November 6 Quantum Computing and Machine Learning, Perspectives and Future Vistas

4-445pm Alessandro Roggero, UW, Nuclear Dynamics on Current Generation Quantum Devices (30+15)

445-530 Sofia Vallecorsa, CERN, Quantum Technologies for High Energy Physics: the CERN Quantum Technology Initiative (30+15)

530-6pm David Dean, ORNL, Quantum and the Future (15+15)

Discussion moderators: All organizers (Morten Hjorth-Jensen, chair)

YouTube Channel

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