Contribution ID: **328** Type: **not specified**

Panel Discussion

Saturday, 23 July 2022 18:10 (50 minutes)

The panel will debate the status and envision the future of QST/HEP intersections and highlight the integration of quantum science and technology developments with the HEP apparatus, including building a quantum-ready workforce.

Topics that will be discussed include: 1) Codesign quantum experiments to advance and be advanced by the HEP mission as exemplified by the ongoing dark sector searches as well as other quantum gravity type of probes in AMO experiments in collaboration with HEP/QIS theorists. 2) The role of NQI centers and QC testbeds including SQMS for example, in advancing the HEP mission on fundamental physics while at the same time advancing Quantum Information Science and Technology systems at large. Status and achievements to-date, challenges and prospects as well as capability building. 3) The integration of Quantum Computing (hardware, software, hybrid architectures) into the laboratory, academic, research computing ecosystem. 4) Status and progress of quantum operating systems and architectures, and the growing partnerships between tech companies and researchers in HEP toward advancing the fundamental physics mission. How the HEP user-based scientific community can help tech companies by providing benchmarking and users of the quantum computing infrastructure. 5) Status and future of Quantum Simulations in HEP, the role and applications of AI/QML in HEP and HEP theoretical or experimental challenges and research that can advance quantum computing and QML tools.

In-person or Virtual?

Presenters: CHOU, Aaron (Fermilab); GRASSELLINO, Anna (Fermilab); BAUER, Chiristian (LBNL); SVORE, Krysta (Microsoft); SCHLEIER-SMITH, Monika (Stanford); DABBAR, Paul (Columbia & BQT); NAIK, Ravi (Berkeley/LBNL); YOO, Shinjae (BNL); HUMBLE, Travis (Oak Ridge National Laboratory)

Session Classification: Afternoon Plenary