MATTER AND TECHNOLOGIES

Contribution ID: **119** Type: **Parallel talk**

Quantum Machine Learning lies at the intersection of Quantum Computing and Machine Learning

Monday 26 September 2022 16:20 (15 minutes)

It is usually employed to analyze classical data in a hybrid mode but also algorithms which are fully realized on quantum computers are appearing. In this talk two examples are presented. One project aims at the accurate simulation for a calorimeter at the HL-LHC employing Quantum Generative Adversarial Networks (Q-GANs) in order to cope with tremendous number of channels and the pile-up. The second example deals with tracking at the LUXE Experiment. This experiment at the XFEL will study QED in the strong-field regime where it becomes non-perturbative. Here extremely high field intensities are a challenge for accurate tracking and addressed with classical methods and Graph Neural Network (GNN) as well as with quantum algorithms like Variational Quantum Eigensolver (VQE).

Presenter: BORRAS, Kerstin (DESY and RWTH Aachen University)

Session Classification: Data Management and Analysis