



Contribution ID: 21

Type: **not specified**

Particle ID with timing using quantum algorithms

Friday 10 December 2021 11:10 (5 minutes)

Description

Can quantum machine learning algorithms tackle particle identification challenges, do they provide any kind of new insights ?

In the high pileup conditions at the High-Luminosity LHC, particle identification using vertex detectors in combination with calorimetry becomes a challenging task. The use of detector hit timing information, through high precision (pico-second) time resolved tracking (4D tracking detectors) and fast calorimetry, is a promising possibility to resolve combinatorial ambiguities in the tracking. So is the use of extended classical and Quantum Machine Learning (QML) algorithms. We propose to compare the results obtained using QML techniques with results using available classical ML algorithms.

CERN group or section submitting a project proposal

gluoNNet & METU & CERN openlab

Authors: POTAMIANOS, Karolos (University of Oxford (GB)); DOBOS, Daniel (Lancaster University (GB)); DEMIRKOZ, Bilge (Middle East Technical University (TR)); NOVOTNY, Kristiane (gluoNNet)

Presenters: POTAMIANOS, Karolos (University of Oxford (GB)); DOBOS, Daniel (Lancaster University (GB)); NOVOTNY, Kristiane (gluoNNet)

Session Classification: Project and collaboration proposals