Contribution ID: **88** Type: **Lightning talk**

FastCaloGAN: a tool for fast simulation of the ATLAS calorimeter system with Generative Adversarial Networks

Wednesday 21 October 2020 11:00 (5 minutes)

Building on the recent success of deep learning algorithms, Generative Adversarial Networks (GANs) are exploited for modelling the response of the ATLAS detector calorimeter of different particle types; simulating calorimeter showers for photons, electrons and pions over a range of energies (between 256 MeV and 4 TeV) in the full detector η range. The properties of showers in single-particle events and of jets in di-jets events are compared with full detector simulation performed by GEANT4. The good performance of FastCaloGAN demonstrates the potential of GANs to perform a fast calorimeter simulation for the ATLAS experiment.

Author: FAUCCI GIANNELLI, Michele (INFN e Universita Roma Tor Vergata (IT))

Presenter: FAUCCI GIANNELLI, Michele (INFN e Universita Roma Tor Vergata (IT))

Session Classification: Workshop

Track Classification: 3 ML for simulation and surrogate model : Application of Machine Learning to simulation or other cases where it is deemed to replace an existing complex model