Contribution ID: **66** Type: **Oral presentation using Zoom**

Generative Models for Hadron Shower Simulation

Thursday, 28 October 2021 15:54 (24 minutes)

Generative machine learning models offer a promising way to simulate events. Given the already high computational cost of simulation and the expected increase in data in the high-precision era of the LHC and at future colliders, such fast surrogate simulators are urgently needed.

This contribution presents initial progress towards accurately simulating of hadronic showers in a highly granular scintillator calorimeter for future colliders. We used two generative models in this study: a Wasserstein-GAN (WGAN) and Bounded Information Bottleneck Autoencoder (BIB-AE). Then we compare the achieved simulation quality before and after interfacing with the state-of-the-art pattern recognition algorithm used by ILD, the so-called PandoraPFA. This brings generative models one step closer to practical applications.

1st preferred time slot for your oral presentation

10:00-12:00 JST (3:00-5:00 CEST, 21:00-23:00 EDT, 18:00-20:00 PDT)

2nd preferred time slot for your oral presentation

15:30-17:30 JST (8:30-10:30 CEST, 2:30-4:30 EDT, 23:30-1:30 PDT)

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Track Classification: Parallel sessions: Detectors: Session A: Software / Computing