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Progressive Generative Adversarial Networks for High Energy Physics Calorimeter Simulations — •Simon Schnake[1,2], Kerstin Borras[1,2], Dirk Krücker[1], Florian Rehm[2,3], and Sofia Vallecorsa[3] — [1]DESY, Hamburg, Germany — [2]RWTH Aachen, Germany — [3]CERN openlab, Geneva, Swiss

The simulation of particle showers in calorimeters is a computational demanding process. Deep generative models have been suggested to replace these computations. One of the complexities of this approach is the dimensionality of the data produced by high granularity calorimeters. One possible solution could be progressively growing the GAN to handle this dimensionality. In this study, electromagnetic showers of a (25x25x25) calorimeter in the energy range of 10 - 510 GeV are used to train generative adversarial networks. The resolution of the calorimeter data is increased while training. First results of this approach are shown.

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