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Angular Conditioning of Generative Models for Fast Calorimeter Shower Simulation — •Peter McKeown — Deutsches Elektronen-Synchrotron DESY, Hamburg, Germany

Modern high energy physics experiments fundamentally rely on accurate simulation- both to characterise detectors and to bridge observed signals and underlying theory. Traditional simulation tools are reliant upon Monte Carlo methods which, while powerful, require significant computational resources, and are projected to become a major bottleneck at the high luminosity stage of the LHC and for future colliders. Calorimeter showers are particularly computationally intensive to simulate, due to a large number of particle interactions with the detector material.

A potential solution based on deep generative models promises to provide drastic reductions in compute times. Previous work in our group has demonstrated the ability of various generative models to accurately reproduce key physical properties of showers in highly granular calorimeters. While this work has focused on the specific case of a particle incident perpendicular to the face of the calorimeter, a practical simulator must be able to correctly simulate arbitrary angles of incidence. In this talk, efforts to add conditioning on the incident angle of the particle will be addressed.

Part:	Т
Туре:	Vortrag;Talk
Topic:	9.02 Datenanalyse,
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