Contribution ID: **13** Type: **Poster + Lightning Talk**

CaloClouds3; Diffusion and normalising flows

Wednesday 16 July 2025 10:00 (3 minutes)

This poster presents the final iteration of the CaloClouds series. Simulation of photon showers in the granularities expected in a future Higgs factory is computationally challenging. A viable simulation must capture the find details exposed by such a detector, yet be substantially faster than MCMC methods. The Caloclouds model utilises point cloud diffusion and normalising flows to replicate MCMC simulation with exceptional actuary. Our latest iteration has taken advantage of domain knowledge to reduce the model complexity, giving a speed up of up to 2 orders of magnitude. Finally, we present the results of reconstructions performed on CaloClouds 3 output against the results from the leading MCMC simulation, Geant4, thus demonstrating that this model provides reliable physics reproductions.

I want to give a Lightning Talk

yes

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