



ID de Contribution: 30

Type: Non spécifié

## Generative models uncertainty estimation

*vendredi 29 avril 2022 16:45 (15 minutes)*

In recent years fully-parametric fast simulation methods based on generative models have been proposed for a variety of high-energy physics detectors. By their nature, the quality of data-driven models degrades in the regions of the phase space where the data are sparse. Since machine-learning models are hard to analyze from the physical principles, the commonly used testing procedures are performed in a data-driven way and can't be reliably used in such regions. In our talk we propose three methods to estimate the uncertainty of generative models inside and outside of the training phase space region, along with data-driven calibration techniques. Test of the proposed methods on the LHCb RICH fast simulation is also presented.

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**Classification de Session:** AI and physics conference