



Contribution ID: 171

Type: **Poster**

【389】 Generate parton-level events from reconstructed events with Conditional Normalizing Flows

Tuesday 10 September 2024 19:53 (1 minute)

In High-Energy Physics, generating meaningful parton configurations from a collision reconstructed within a detector is a critical step for many complex tasks like the Matrix Element Method computation and Bayesian inference on parameters of interest.

We propose to tackle this problem from a new perspective by using a Transformer network to analyze the full event at the reconstruction level (including jets and leptons). This approach extracts a latent vector which is used to condition a Flow network. The full architecture generates probable sets of partons that are compatible with the observed objects.

Our strategy is applicable to events with multiple jets multiplicity and can model additional radiation at parton level.

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Session Classification: Poster Session

Track Classification: Nuclear, Particle- and Astrophysics (TASK)