

Anomaly searches in Atlas track distributions

Friday 22 November 2024 15:26 (6 minutes)

Searches for physics beyond the Standard Model at the Large Hadron collider usually rely on phenomena that affect leptons, photons or jets with high transverse momenta (> 15 GeV).

Alongside these hard physics objects, proton-proton collisions produce a multitude of soft ones, which are known as the underlying event. This work focuses on the search of anomalies among the soft physics objects, a phase space not studied before, which would hint at the existence of particular new phenomena. A feasibility study is currently performed on Monte Carlo simulations, using CATHODE, a model agnostic search strategy that uses outlier density estimations to detect anomalies. First results and encountered challenges will be presented.

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Session Classification: Flash Talks 3