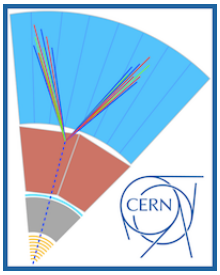

Contribution ID: **12** Type: **not specified**

Using BDTs as Surrogate Models for BSM searches in ATLAS

Thursday, 5 June 2025 12:20 (17 minutes)

In this talk, I will present a novel approach for the reinterpretation of LHC searches for long-lived particles (LLPs) using Boosted Decision Trees (BDTs). This method allows us to estimate the likelihood that events from a new physics model would have been selected in a prior analysis, based solely on truth-level information. I will discuss the development and validation of method, including its integration within the HackAnalysis framework. Furthermore, I will explore its application to an extended version of the HAHM model with asymmetric LLPs (in mass and lifetime), and highlight the promising results obtained.

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Session Classification: Theory and pheno V