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Type: **Talk**

Towards discrimination and improved modelling of dark-sector showers

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As classic WIMP-based signatures for dark matter at the LHC have found no compelling evidence, several phenomenological studies have raised the possibility of accessing a strongly-interacting dark sector through new collider-event topologies. If dark mesons exist, their evolution and hadronization procedure are currently little constrained. They could decay promptly and result in QCD-like jet structures, even though the original decaying particles are dark sector ones; they could behave as semi-visible jets; or they could behave as completely detector-stable hadrons, in which case the final state is just the missing transverse momentum. In this contribution we will introduce a study performed to explore use of jet substructure methods to distinguish dark-sector from QCD jets in the first two scenarios, using observables in a IRC-safe linear basis, and discuss ways forward for this approach to dark-matter at the LHC, including prospects for estimating modelling uncertainties.

Preferred track

Jets & QCD at High Scales

Subfield

HEP theory

Attending in-person?

Yes

On behalf of collaboration?

No

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