

Exploring Dark Showers with Radiations

Tuesday 21 January 2025 16:20 (7 minutes)

We investigate the potential to search for semi-visible jets (SVJs) at the Large Hadron Collider (LHC) using initial-state radiation (ISR). Both photon ISR and jet ISR channels are considered, using a benchmark signal model with the decay of a leptophobic Z' mediator forming two SVJs. We compare and extend several techniques to decompose the missing transverse momentum into per-jet contributions, in order to reconstruct the mediator mass and to define a new observable measuring the fraction of invisible dark hadrons. The presence of ISR facilitates the identification of the SVJs, and the resulting boost improves the resolution of the observables, especially for models with high invisible fractions. We combine the two observables to propose a complete search strategy and discuss an extension of the strategy to probe the whole model parameter space.

Are you happy to have the meeting recorded?

Yes

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Session Classification: Flash Talks