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Dark Sector Showers in the Lund Jet Plane

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In this talk, we will discuss the consequences of models where dark sector quarks could be produced at the LHC, which subsequently undergo a dark parton shower, generating jets of dark hadrons that ultimately decay back to Standard Model hadrons. This yields collider objects that can be nearly indistinguishable from Standard Model jets, motivating the reliance on substructure observables to tease out the signal. However, substructure predictions are sensitive to the details of the incalculable dark hadronization. We will show how the Lund jet plane can be an effective tool for designing observables that are resilient against the unknown impact of dark hadronization on the substructure properties of dark sector jets.

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