

Signals of Pure-Glue and Many-Species Dark Sectors

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The pure-gluon limit of confining dark sectors reveals new insights into dark shower phenomenology. When the dark quark masses and the scale of a collider's hard interactions that produce the dark sector are significantly larger than the dark confinement scale, there is a dark gluon shower that produces only dark glueballs. These glueballs can then decay to the Standard Model with lifetimes that vary greatly depending on the glueball species and the parameters that set the strength of the portal interaction. This hierarchy of lifetimes leads to different potential signals, including semivisible and emerging jets. In fact, the difference in lifetimes between different species reveals an overlap in the semivisible and emerging jet regimes, motivating search strategies that leverage observables from both signals for any dark shower model with several dark hadron species.

Are you happy to have the meeting recorded?

Yes

Author: BATZ, Austin (University of Oregon)

Presenter: BATZ, Austin (University of Oregon)

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