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Dark QCD: the Next Frontier in Dark Matter

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There has been a surge of interest in hidden valley models with new, strong forces, sometimes called "dark QCD". These models propose asymmetric, composite dark matter in the form of "dark hadrons" that would evade direct and indirect bounds as well as typical collider DM searches for large missing transverse momentum accompanied by radiation. However, evidence of these models can still be found in collider datasets by targeting their unique phenomenological signatures, which include semivisible jets, emerging jets, and soft unclustered energy patterns. We will present the latest experimental results for these signatures and discuss the significant strides in exploring the vast space of dark QCD models. We will further discuss the prospects for dramatic expansions in sensitivity via machine learning.

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