

Abstract Submitted
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Lattice calculation of composite dark matter form factors DAVID SCHAICH, University of Colorado, LATTICE STRONG DYNAMICS COLLABORATION — Composite dark matter candidates, which can arise from new strongly-coupled sectors, are well-motivated and phenomenologically interesting, particularly in the context of asymmetric generation of the relic density. I will present large-scale lattice calculations of electromagnetic form factors of electroweak-neutral dark-matter “baryons” that arise from QCD-like $SU(3)$ gauge theories with $N_f = 2$ and 6 degenerate fermions in the fundamental representation. This recent work of the Lattice Strong Dynamics Collaboration studies the composite dark matter charge radius and anomalous magnetic moment, both of which can play a significant role for direct detection. We find minimal N_f dependence in these quantities, and generate mass-dependent cross-sections for the dark matter–nucleon interaction. In conjunction with experimental results from XENON100, we exclude dark matter candidates of this type with masses below 10 TeV.

David Schaich
University of Colorado

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