



Contribution ID: 180

Type: Parallel Talk

Exploring Composite Dark Matter with an SU(4) gauge theory with 1 fermion flavor

Thursday, 3 August 2023 14:50 (20 minutes)

Several SU(N) gauge theories have been explored as candidates for producing stable dark matter particles that can explain their relative abundance, while also evading current constraints from direct, indirect and collider searches. In this talk, I will present the confinement and spectral properties of a new model we name Hyper Stealth Dark Matter, which involves an SU(4) gauge theory with 1 quark flavor. The lightest baryon in this theory can be a potential dark matter candidate as it is protected from decay and hence can evade detection with a mass of just a few GeV. Existence of a first order confinement transition would open the possibility of potential detection of gravitational waves from such a transition at future observatories.

Topical area

Particle Physics Beyond the Standard Model

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Session Classification: Particle Physics Beyond the Standard Model