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Dark Matter from a secluded Dark $SU(N)$ Theory with a Single Quark Flavor

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In this talk, we analyze the viability of dark matter candidates arising from a secluded, confining, large- N $SU(N)$ gauge theory with a single quark flavor. In a $SU(N)$ gauge theory with a single quark flavor, the low-energy bound states consist of a delta-like baryon and an eta-prime meson. By solving coupled Boltzmann equations, we demonstrate that there are ample regions of parameter space in which either delta (via freeze-in) or eta-prime (via freeze-out) dark matter is possible. Limits on dark matter self-interaction and delta- N -effective are applied to constrain the available parameter space of the theory. We find that eta-prime dark matter is generically allowed, while delta dark matter is firmly ruled out by self-interaction constraints.

Summary

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