

Colored Dark Matter

Wednesday, 14 February 2018 09:00 (30 minutes)

We explore the possibility that Dark Matter is the lightest hadron made of two stable color octet Dirac fermions

Q . The cosmological DM abundance is reproduced for $M_Q \approx 9.5 \text{ TeV}$, compatibly with direct searches (the Rayleigh cross section, suppressed by $1/M_Q^6$, is close to present bounds), indirect searches (enhanced by

Q

$Q + \bar{Q}Q \rightarrow$

$QQ +$

QQ recombination), and with collider searches (where

Q manifests as tracks, pair produced via QCD). Hybrid hadrons, made of

Q and of SM quarks and gluons, have large QCD cross sections, and do not reach underground detectors. Their cosmological abundance is 10^5 times smaller than DM, such that their unusual signals seem compatible with bounds. Those in the Earth and stars sank to their centers; the Earth crust and meteorites later accumulate a secondary abundance, although their present abundance depends on nuclear and geological properties that we cannot compute from first principles.

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Session Classification: Talks