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Confront resonant s-wave dark matter to cosmological and astrophysical constraints

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There are strong cosmological and astrophysical constraints for thermal dark matter below the GeV scale: CMB excludes s-channel annihilation cross-sections for thermal dark matter below 10 GeV. What kind of special properties dark matter should have to evade such strong constraints ?

Resonant annihilation is one possibility.

First, I will explain the effects of resonances on the formation of the dark matter relic with a model-independent approach.

Then, I will focus on light dark matter interacting with quarks and gluons, introducing the Chiral Lagrangian, and discussing if resonant s-wave models can evade the constraints that are obtained from CMB and indirect detection.

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Classification de Session: Theory