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Massive Gravitons as Feebly Interacting Dark Matter Candidates

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We discovered a chiral enhancement in the production cross-sections of massive spin-2 gravitons, below the electroweak symmetry breaking scale, that makes them ideal dark matter candidates for the freeze-in mechanism. The result is independent on the physics at high scales, and points towards masses in the MeV range. The graviton is, therefore, a warm dark matter particle, as favoured by the small scale galaxy structures. We apply the novel calculation to a Randall-Sundrum model with three branes, showing a significant parameter space where the first two massive gravitons saturate the dark matter relic density.

In-person participation

Yes

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