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Status of sub-GeV dark matter

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Dark matter particles in the sub-GeV range are exciting candidates as they evade the strongest constraints from direct direction using nuclear recoils. On the other hand, they are strongly constrained by the relic abundance, indirect detection with X-rays, observations of the Bullet cluster as well as searches at beam-bump and electron-positron colliders. In this talk I will show the results from frequentist and Bayesian global studies on fermionic and scalar sub-GeV dark matter coupled to a dark photon, with and without a particl-antiparticle asymmetry, and present new optimised benchmark points that can be used in future searches.

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