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Stealth Dark Matter on the lattice

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The Stealth Dark Matter model contains a candidate composite dark matter particle which appears as a bosonic neutral baryon of a new strongly coupled sector. The elementary constituents of this composite state carry electroweak charges. This construction provides a mechanism to naturally reduce the strength of dark matter interactions with standard model particles. However such interactions exist and can allow direct detection, and collider experiments to put constraints on the model. In order to get predictions from this strongly-coupled model, lattice simulations are employed and give definite predictions for the cross-section of the dark matter candidate with standard nuclei in detectors for example. Lattice simulations are shown to be of ut-most relevance for some dark matter models and they are increasingly important to obtain phenomenological predictions of experimental interest.

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