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Cosmology and LHC phenomenology of simplified SIMP models

I will discuss the cosmology and LHC phenomenology of a consistent, strongly interacting dark sector coupled to Standard Model particles through a Z' mediator. I will lay out the requirements for the model to be cosmologically viable, consider the dominant freeze-out processes, and discuss bounds from direct detection. Using this consistent SIMP sector, I will then focus on the sensitivity of LHC searches to semi-visible jets originating from dark showers. This includes recasting existing searches and investigating proposed dedicated analyses. I will also argue that displaced decays are a generic feature of viable SIMP models.

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