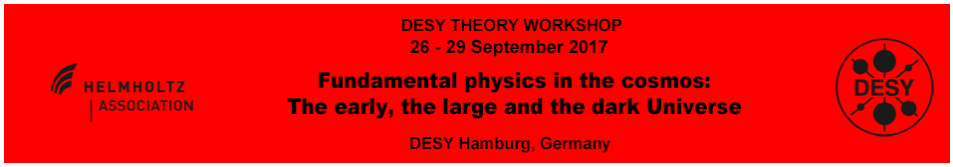

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A new search for simplified models of dark matter at the LHC

Thursday 28 September 2017 14:34 (17 minutes)

We introduce a new set of simplified models to address the effects of 3-point interactions between the dark matter particle, its dark co-annihilation partner, and the Standard Model degree of freedom, which we take to be the tau lepton. We investigate these effects as well as the discovery potential for dark matter co-annihilation partners at the LHC. A small mass splitting between the dark matter and its partner is preferred by the co-annihilation mechanism and suggests that the co-annihilation partners may be long-lived (stable or meta-stable) at collider scales. It is argued that such long-lived electrically charged particles can be looked for at the LHC in searches of anomalous charged tracks.

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