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Searching for Heavy Dark Matter near the Planck Mass with XENON1T

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Multiple viable theoretical models predict heavy dark matter particles with a mass close to the Planck mass, a range relatively unexplored by current experimental measurements. We conducted a blind search for signals from Multiply-Interacting Massive Particles (MIMPs) in XENON1T, whose unique track signature allowed a targeted analysis with only 0.05 expected background events from muons. We observed no signal candidate events in the search data with a total exposure of 219.4 days. In this poster, we will present the search strategy and the new constraints on spin-independent and spin-dependent interactions of dark matter particles with masses close to the Planck scale.

Submitted on behalf of a Collaboration?

Yes

Primary author: LI, Shengchao (Purdue University and Westlake University)

Presenter: LI, Shengchao (Purdue University and Westlake University)

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