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Explaining the recent XENON1T excess with Inelastic Dark matter

Friday, 9 July 2021 07:12 (14 minutes)

Measuring dark matter (DM) signals via electron recoil provides an important means for the direct detection of light DM particles. In this talk, I will show that the recent XENON1T anomaly with electron recoil energy around (2 – 3) keV can be naturally explained by the exothermic inelastic scattering between DM and electrons in a 2-component DM scenario. The stability of the heavier component is guaranteed by the small mass gap which sources the electron recoil energy. We provide an effective field analysis on this scenario focusing on the direct detection and relic density constraints. I will also discuss probable UV completions of this scenario.

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