

Phenomenology 2021 Symposium



Contribution ID: 1162

Type: DM

Continuum-Mediated Self-Interacting Dark Matter

Tuesday 25 May 2021 15:45 (15 minutes)

Dark matter self-interactions have been proposed as a solution to various astrophysical small-scale structure anomalies. We explore the scenario in which dark matter self-interacts through a continuum of low-mass states. This happens if dark matter couples to a strongly-coupled nearly-conformal hidden sector. This type of theory is holographically described by brane-localized dark matter interacting with bulk fields in a slice of 5D anti-de Sitter space. The long-range potential in this scenario depends on a non-integer power of the spatial separation. We find that continuum mediators introduce novel power-law scalings for the scattering cross section, opening new possibilities for dark matter self-interaction phenomenology.

Summary

Primary author: CHAFFEY, Ian (University of California, Riverside)

Co-authors: Prof. TANEDO, Flip (UC Riverside); Dr FICHET, sylvain

Presenter: CHAFFEY, Ian (University of California, Riverside)

Session Classification: DM III