

Dark matter decay via the gravity portal

Friday, 15 July 2016 11:40 (50 minutes)

We consider the Standard Model extended with a dark matter particle in curved spacetime, motivated by the fact that the only current evidence for dark matter is through its gravitational interactions, and we investigate the impact on the dark matter stability of terms in the Lagrangian linear in the dark matter field and proportional to the Ricci scalar. We show that this “gravity portal” induces decay even if the dark matter particle only has gravitational interactions, and that the decay branching ratios into Standard Model particles only depend on one free parameter: the dark matter mass. We study in detail the case of a light singlet scalar and discuss the prospects to observe its gravitationally induced decay.

Presenter: IBARRA, Alejandro (TU Munich)

Session Classification: Morning Session 2