

Fundamental physics in the cosmos: The early, the large and the dark Universe



Contribution ID: 9

Type: **not specified**

Spectral features from light dark matter decay via gravity portal interactions

Wednesday 27 September 2017 15:26 (16 minutes)

One of the key properties of dark matter particles is their longevity. However, even if dark matter is absolutely stable against decay in flat spacetime, as commonly assumed in the literature, the presence of nonminimal couplings to gravity of the dark matter field can spoil this stability in curved spacetime, with potentially remarkable phenomenological implications. More specifically, a scalar dark matter candidate with a mass in the MeV-GeV range, destabilized through a linear coupling to the Ricci scalar, can decay into electron-positron pairs and photons. In this case, observations of the cosmic microwave background by the Planck satellite and of the extragalactic isotropic gamma-ray background by COMPTEL, EGRET and Fermi LAT can be used to constrain the size of the nonminimal coupling parameter.

Primary authors: IBARRA, Alejandro (TU of Munich); CATÀ, Oscar (LMU, Munich); INGENHÜTT, Sebastian (TU of Munich and MPP, Munich)

Presenter: INGENHÜTT, Sebastian (TU of Munich and MPP, Munich)

Session Classification: Parallel Session: Cosmology & Astroparticle Physics - Dark Matter

Track Classification: Cosmology & Astroparticle Physics