TeV Particle Astrophysics 2017 (TeVPA 2017)



Contribution ID: 439

Type: Oral

Search for hidden-photon Dark Matter with FUNK

Tuesday 8 August 2017 17:45 (15 minutes)

Many extensions of the Standard Model of particle physics predict a parallel sector of at least one new U(1) symmetry, giving rise to hidden photons. If produced non-thermally in the early universe, these hidden photons can be candidate particles for cold Dark Matter. Hidden photons are expected to kinetically mix with regular photons. If hidden photons pass through a conducting surface a tiny electromagnetic signal is produced. Due to the kinematics of the process, these photons are emitted almost perpendicularly to the surface. The corresponding photon frequency is given by the mass of the hidden photons. In this contribution we present results of a search for dark photons in the mass range from 2 to 8 eV using a spherical metallic mirror of 14 m² area. We will also discuss future Dark Matter searches in the eV and sub-eV range by application of different detectors for electromagnetic radiation.

Author: ENGEL, Ralph Richard (KIT - Karlsruhe Institute of Technology (DE))

Presenter: ENGEL, Ralph Richard (KIT - Karlsruhe Institute of Technology (DE))

Session Classification: Dark matter

Track Classification: Dark matter (direct detection, indirect detection, theory, etc.)