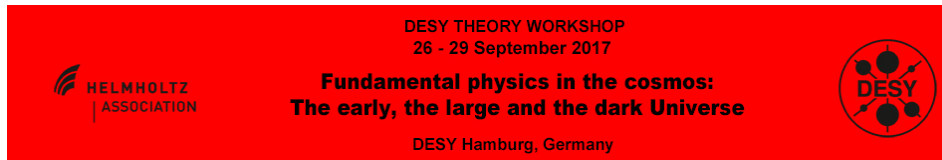


Fundamental physics in the cosmos: The early, the large and the dark Universe



Contribution ID: 24

Type: **not specified**

Measuring mediator masses with low-threshold direct detection experiments

Wednesday 27 September 2017 14:17 (17 minutes)

One of the simplest particle physics realizations of self-interacting dark matter is a WIMP interacting with a MeV-scale scalar mediator. While this scenario is already largely excluded for dark matter masses above ~ 5 GeV by null searches from various direct detection experiments, future low-threshold detectors such as CRESST and CDMS could be sensitive to so far unexplored regions of the parameter space in which the WIMP has a mass of only a few GeV. In this talk I will demonstrate that by combining spectral information from several targets, these future experiments could be able to simultaneously reconstruct both the dark matter and mediator mass, and thereby offer the exciting possibility to probe astrophysical properties of dark matter using direct detection searches.

Primary author: Dr WILD, Sebastian (DESY)

Presenter: Dr WILD, Sebastian (DESY)

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

Track Classification: Cosmology & Astroparticle Physics