

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



DESY THEORY WORKSHOP
26 - 29 September 2017

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

DESY Hamburg, Germany



Contribution ID: 14

Type: **not specified**

Hunting the dark Higgs

Thursday 28 September 2017 15:08 (17 minutes)

I will discuss a novel signature of dark matter production at the LHC resulting from the emission of an additional Higgs boson in the dark sector. The presence of such a dark Higgs boson is motivated simultaneously by the need to generate the masses of the particles in the dark sector and the possibility to relax constraints from the dark matter relic abundance by opening up a new annihilation channel. If the dark Higgs boson decays into Standard Model states via a small mixing with the Standard Model Higgs boson, one obtains characteristic large-radius jets in association with missing transverse momentum that can be used to efficiently discriminate signal from backgrounds. I will present the sensitivities achievable in LHC searches for dark Higgs bosons with already collected data and demonstrate that such searches can probe large regions of parameter space that are inaccessible to conventional mono-jet or di-jet searches.

Primary author: DUERR, Michael (DESY)

Presenter: DUERR, Michael (DESY)

Session Classification: Parallel Session: Particle Phenomenology 1a

Track Classification: Particle Phenomenology