Contribution ID: **5** Type: **Contributed talk**

Search for Dark photons at colliders

Thursday 28 July 2016 11:30 (15 minutes)

Summary

We present a model-independent study of the exotic resonant monophoton signature coming from a Higgs boson decaying into a photon plus a dark photon at the LHC. Dark-photon scenarios have been extensively considered in the literature, especially in the framework of astroparticle and cosmology. More recently, they acquired a role in the context of dark U(1)_F flavor models, explaining the origin and hierarchy of the standard model Yukawa couplings. After a short presentation of U(1)_F flavor models, we explore experimentally allowed frameworks, where the Higgs-boson coupling to photon and dark photon can be enhanced. We also outline possible new searches for correlated signatures at future e+e- colliders.

Based on (arXiv number)

1405.5196; 1503.05836; 1603.01377

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Session Classification: Dark Matter at Particle Colliders

Track Classification: Dark Matter at Particle Colliders