

## **Faking The Diphoton Excess (?) by Displaced Dark Photon Decays**

*Thursday, 14 July 2016 10:20 (50 minutes)*

When passing identification cuts, a particle beyond SM can fake an SM object in a collider experiment. In this talk, I show how a light and meta-stable dark photon which decays into  $e^+e^-$  can fake an SM photon, either converted or unconverted, at the LHC. Using the recent hint of 750 GeV diphoton signal as an example, we discuss the distinct feature of the fake photon signal and how the signal can be imbedded into a larger class of theoretical explanation for the 750 GeV. I also discuss possible ways of distinguishing these dark photon decays from real photon events in the future.

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**Session Classification:** Morning Session 1