

## Search for Dark Interactions at the LHC

*Thursday, 14 July 2016 14:30 (50 minutes)*

Hidden sector or dark sector states appear in many extensions to the Standard Model, to provide a candidate for the dark matter in the universe or to explain astrophysical observations of positron excesses. A hidden or dark sector can be introduced with an additional  $U(1)_d$  dark gauge symmetry. The presence of the dark sector could be inferred either from deviations from the SM-predicted rates of Drell-Yan (DY) events or from Higgs boson decays through exotic intermediate states. The discovery of the Higgs boson during Run 1 of the Large Hadron Collider opens a new and rich experimental program that includes the search for exotic decays  $H \rightarrow Z Z_{\text{dark}} \rightarrow 4l$  and  $H \rightarrow Z_{\text{dark}} Z_{\text{dark}} \rightarrow 4l$ , where  $Z_{\text{dark}}$  is a dark vector boson.

In this talk, we will review the status of current searches for dark sector states at the LHC and the prospects for LHC Run 2.

**Presenter:** ASSAMAGAN, Ketevi (BNL)

**Session Classification:** Afternoon Session