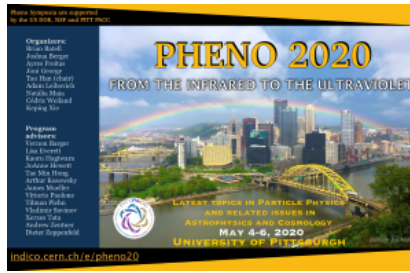Contribution ID: **1026**   Type: **Parallel Talk**

Diagnosing the Hidden Sector with MATHUSLA and CMS

Monday 4 May 2020 17:15 (15 minutes)

Many BSM scenarios predict the existence of new long-lived particles (LLPs). Several new experiments have been proposed to probe the long-lifetime regime at the LHC. One of these is MATHUSLA, a large-volume surface-level detector designed to detect neutral ultra-long lived particles. In this talk I will describe how information from MATHUSLA can be combined with main-detector events to identify the production topology of detected LLPs in an LLP simplified model framework, as well as to estimate the masses of the LLP as well as any possible parent particles in the production process. Surprisingly, as few as 10-100 detected events are enough to determine the production mode and mass parameters in many cases. This has important implications for using MATHUSLA as a CMS L1 trigger.

Summary

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