



Contribution ID: 275

Type: **not specified**

Looking for beyond the Standard Model interactions of neutrinos and light dark matter with secondary production

Wednesday, 25 August 2021 15:10 (20 minutes)

The search for beyond the Standard Model interactions of neutrinos and other light new physics species is one of the most promising experimental targets, which, in the high-energy regime, is also currently less explored. In the talk, we will discuss novel prospects for such studies that will be opened up thanks to a new far-forward physics program at the LHC to be initiated with the FASER experiment. We will illustrate this for GeV-scale heavy neutral leptons (HNLs) that could be produced in neutrino scatterings mediated by the dipole or light vector portal, but also for long-lived dark photons, dark Higgs bosons, and stable dark matter particles of similar mass that can be produced in interaction right in front of the detector. Such a secondary production of new physics species would also extend the reach of the proposed MATHUSLA and SHiP detectors. In all cases, we find good discovery prospects of BSM physics.

Primary authors: KLING, Felix (SLAC); JODLOWSKI, Krzysztof (National Centre for Nuclear Research); ROSZKOWSKI, Leszek (National Centre for Nuclear Research (PL)); TROJANOWSKI, Sebastian

Presenter: JODLOWSKI, Krzysztof (National Centre for Nuclear Research)

Session Classification: Searches for the BSM Physics at the LHC and Future Hadronic Colliders

Track Classification: Searches for the BSM Physics at the LHC and Future Hadronic Colliders