Scalars 2019

Contribution ID : 47

Probing short-lifetime regime in FASER and SHiP detectors

Friday 13 Sep 2019 at 15:15 (00h15')

Content :

One of the most rapidly developing areas of research in particle physics nowadays is to look for new, light, extremely weakly-interacting particles that could have escaped detection so far due to the lack of sufficient luminosity. A particularly promising experimental strategy in these, so-called, intensity-frontier searches is to look for highly-displaced decay signatures of light long-lived particles (LLPs) in a distant detector that is well-shielded from SM background. This approach is, however, limited to a certain lifetime regime of new particles that must reach the detector before decaying. In this talk, we will discuss how this basic constraint can be overcome in BSM models that go beyond the simplest scenarios. If more than one light new particle is present in the model, an additional secondary production of LLPs can happen right in front of the detector, opening this way a new lifetime regime to be probed. We illustrate the prospects of such searches in future experiments, including FASER and proposed SHiP for a representative model with inelastic dark matter.

Primary authors : Mr. JOD■OWSKI, Krzysztof (National Centre for Nuclear Research) ; Dr. TROJANOWSKI, Sebastian (UC Irvine and NCBJ) ; ROSZKOWSKI, Leszek (NCBJ and Univ. of Sheffield) ; Dr. KLING, Felix (SLAC)

Co-authors :

Presenter : Mr. JOD■OWSKI, Krzysztof (National Centre for Nuclear Research)

Session classification : Parallel 2

Track classification : --not yet classified--

Type : --not specified--