

Looking for light new particles with secondary production in the far-forward region of the LHC

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One of the primary aims of the Forward Physics Facility (FPF) would be to search for highly-displaced decays of light and long-lived particles (LLPs) produced in proton-proton collisions at the LHC. These searches are, however, limited to new particles with decay lengths similar to or larger than the baseline of the FPF. We will discuss how this basic constraint can be overcome in models that go beyond the simplest BSM scenarios thanks to a possible secondary production of LLPs right in front of the detector. A similar mechanism would allow one to treat the FPF as a high-energy neutrino beam-dump experiment to probe BSM couplings of the SM neutrinos.

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