

Seminarium Studium Doktoranckiego NCBJ
Thursday, 16 January, 9:00
Sala 404 w NCBJ, Pasteura 7

Speaker:
Krzysztof Jodłowski (Studium Doktoranckie NCBJ)

Title:
Extending the reach of FASER, MATHUSLA and SHiP towards smaller lifetimes using secondary production

Abstract:

Many existing or proposed intensity-frontier search experiments look for decay signatures of light long-lived particles (LLPs), highly displaced from the interaction point, in a distant detector that is well-shielded from SM background. This approach is, however, limited to new particles with decay lengths similar or larger than the baseline of those experiment. I 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 may take place right in front of the detector, opening this way a new lifetime regime to be probed. I will cover prospects of selected representative future experiments - FASER, MATHUSLA and SHiP - in detecting such particles present in well motivated scenarios extending Standard Model that can provide solutions to the dark matter or anomalous magnetic moment of muon problems.