

Production of new physics particles via mixing with neutral mesons

We revise the production of hypothetical new physics particles in the GeV range via their mixing with neutral mesons—a channel that is important for various extensions of the Standard Model. To do this, we implement the sub-processes of the production via the string fragmentation and decays of heavier mesons in **pythia8** and study how the overall flux and kinematic distributions depend on the particle's mass. We find that our results may differ from the approximate description used previously in the literature by an order of magnitude. We also discuss the importance of the production via mixing for axion-like particles and vector mediators.

Authors: OVCHYNNIKOV, Maksym (CERN); MRENNNA, Stephen; KYSELOV, Yehor (Taras Shevchenko National University of Kyiv)

Presenter: KYSELOV, Yehor (Taras Shevchenko National University of Kyiv)