

## Revised phenomenology of models with particles in GeV mass range

In this talk, I will discuss the phenomenology of various benchmark models proposed by the Physics Beyond Colliders initiative to explore new physics in the GeV mass range - HNLs, dark photons, axion-like particles, and Higgs-like scalars, as well as the models of other vector mediators and elastic/inelastic dark matter. I will consider the recent advances in the phenomenology description of these models, paying special attention to the theoretical uncertainty, which may reach a few orders of magnitude depending on the model. I will then show how these uncertainties affect the model's parameter space, considering past and future laboratory experiments, including the Downstream algorithm@LHCb.

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