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A new tool to reweigh semileptonic decays to search for new physics

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The search for new physics involving semileptonic decays requires often the use of dedicated Monte Carlo samples, as acceptance and selection efficiencies depend on the kinematics of the sought for signal process. We present a new tool that allows to reweigh exclusive semileptonic B, Bs and Lambda_b decays with kinematic weights into a range of models of interest, such as for instance additional contributions from right-handed currents, type II and III two-Higgs doublet Models or Leptoquark contributions. The reweighing is based on the ratio of the full decay matrix elements and works with all implemented Standard Model matrix elements of the EvtGen Monte Carlo generator. In this talk we demonstrate the underlying method and apply it to several currently interesting use-cases.

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