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Coherent Showers in Decays of Coloured Resonances(20' + 10')

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Monte Carlo event generators remain an indispensable tool in the reconstruction of boosted objects. Typically, in parton shower Monte Carlos, coloured resonances radiate only in production, while any coloured decay products radiate independently of this. This approach fails to take into account interference between the radiation produced in production and decay. Inclusion of these coherence effects not only modifies the radiation pattern, but a different recoil strategy must be employed. Both of these features can potentially modify the shape of distributions used in the reconstruction of such resonances.

In this talk, we present a new implementation of coherent radiation from coloured resonances for VINCIA, an antenna-shower plug-in to the PYTHIA 8 Monte Carlo event generator. We consider top quark pair-production at the LHC as a case study, and present the impact on observables relevant for the measurement of the top quark mass.

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