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A search for beyond the Standard Model Physics using a final state with light and boosted muon pairs at CMS experiment

PONENTE:

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A search for new physics phenomena is presented using a final state with multi-muons, the topology under study considers pairs of opposite sign muons (di-muons) with a low invariant mass and potentially produced far from the interaction point (displaced). Several beyond the Standard Model scenarios fit into this category, including those predicting dark matter particles (e.g. Dark photons). Another scenario is the Next-to-Minimal Supersymmetric Standard Model (NMSSM) that extends the Higgs sector introducing new light bosons that can decay to muon pairs. The data analyzed corresponds to the one collected during Run2 (2015-2018) using 13 TeV collision energy. This search constrains a large previously unconstrained area of the parameter space for each mode and allows for an easy reinterpretation of new physics models with similar final state.

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