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Search for exotic Higgs decay H->ll+MET with the ATLAS experiment

Tuesday 14 May 2024 14:00 (15 minutes)

Beyond the Standard Model (BSM) Higgs with a same-flavor, opposite-charge dilepton plus Missing Transverse Energy (MET) final state are predicted by many models, including extensions of supersymmetry with an additional scalar. Such models are motivated by phenomenological issues with the Standard Model, such as the hierarchy problem, and by astrophysical observations such as the excess of gamma-ray radiation in the Milky Way galactic center. We have seen sensitivity over the range of 1-4 GeV and >20 GeV for the mass of this scalar. Now, we are targeting the 4-20 GeV range. Conveniently, the proposed signal decay has the same final state as that of the signal region of a published ATLAS search for gauginos in a compressed-mass scenario at the LHC. Due to this apparent signal region overlap, we can take advantage of the analysis preservation and reinterpretation framework (RECAST) to calculate limits on the branching ratio for this decay mode instead of building a dedicated analysis in this range.

Mini Symposia (Invited Talks Only)

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