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Hunting light SUSY: combined impact of LHC searches

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We discuss a possible explanation of a slight excess in the WW cross section measurement performed by ATLAS and CMS. While still consistent with the Standard Model within 1-2 sigma, the excess could be also a first hint of physics beyond the Standard Model. We argue that this effect could be attributed to the production supersymmetric particles, eg. stops or charginos. The stops of mass ~ 200 GeV has the right cross section and under some assumptions can significantly contribute to the final state of two leptons and missing energy. Using CheckMATE and ATOM, the automated packages for comparing BSM models with experimental data, we scan this region of parameter space to find particle masses preferred by Standard Model measurements (WW and WZ production) and SUSY searches. We propose kinematic observables that could distinguish supersymmetric signal from the Standard Model contribution, as well as differentiate between various supersymmetric processes.

Summary

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