

Global LHC constraints on electroweak-inos with SModelS v2.3

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Electroweak-inos, superpartners of the electroweak gauge and Higgs bosons, play a special role in supersymmetric theories. Their intricate mixing into chargino and neutralino mass eigenstates leads to a rich phenomenology, which makes it difficult to derive generic limits from LHC data. We present a global analysis of LHC constraints for promptly decaying electroweak-inos in the context of the minimal supersymmetric standard model, exploiting the SModelS software package. Combining up to 16 ATLAS and CMS searches, we study which combinations maximise the sensitivity in different regions of the parameter space, how fluctuations in the data in individual analyses influence the global likelihood, and what is the resulting exclusion power of the combination compared to the analysis-by-analysis approach. Coupled with a bottom-up procedure, we also highlight parameter space regions that maximally violate the standard model hypothesis while remaining compatible with the LHC constraints.

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