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A Global Analysis of Constrained Supersymmetric Models after the Higgs Discovery with Fittino

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We present results from the latest global fit analysis of the constrained supersymmetric models CMSSM and NUHM1/2 performed with the Fittino framework. The fit includes low-energy and astrophysical observables as well as collider constraints from the non-observation of new physics in supersymmetric searches at the LHC. Furthermore, the Higgs boson mass and signal rate measurements from both the LHC and Tevatron experiments are included via the program HiggsSignals. Although the LHC exclusion limits and the Higgs mass measurements put tight constraints on the viable parameter space, we find an acceptable fit quality once the Higgs signal rates are included. For the first time, we perform a dedicated toy experiment analysis in order to calculate true p-values as well as estimates on the allowed parameter ranges of the investigated models. Finally, we present a projection to future fit results assuming more precise measurements of the Higgs signal rates.

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