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Development of a consistent framework for indirect MSSM constraints

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Already today, low-energy data from flavour physics experiments, high precision electroweak observables as well
as astrophysical data impose strong constraints on many new physics (NP) scenarios. In order to quantify the agreement of a particular NP model with the existing experimental measurements, a consistent set of theory predictions has to be provided. For that reason it is desirable to combine the different calculations into one common “mastercode”. At the recent LHC flavour workshop, a collaboration of theorists and experimentalists has
been formed to develop a first version of such a common tool. This package currently contains state-of-the-art calculations of low-energy flavour, electoweak, and astroparticle observables in the minimal supersymmetric standard model (MSSM). Using this tool as a foundation, we carry out a comprehensive \chi^2 based extraction of important MSSM parameters. The results of this study indicate that today’s experimental data already place tight constraints on the MSSM parameter space. Furthermore, it demonstrates that these constraints can be utilized to significantly facilitate the interpretation of potential LHC/ILC discoveries. In this talk we present the
results of this study and outline the design and usage of the developed common “mastercode”.

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