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Precise Higgs mass predictions in the (N)MSSM

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The discovery of the Higgs boson with a mass of 125.09 GeV significantly constrains the allowed parameter space of the many SUSY models that predict the mass of the lightest Higgs boson to be of the order of the Z mass at tree-level. In these models, among which the MSSM is probably the most studied, large loop corrections are necessary to obtain a light Higgs boson mass compatible with the experimentally measured value. Large corrections, however, lead to a large uncertainty, making a precise Higgs mass prediction very challenging in the viable MSSM parameter space.

In this talk I review recent developments regarding the precision prediction of the lightest CP-even Higgs boson mass in the real (N)MSSM. Different calculational methods, such as fixed-order, effective field theory or hybrid calculations are presented and compared in viable (N)MSSM parameter regions regarding their precision in the Higgs mass prediction.

Parallel Session

Electroweak, Top and Higgs Physics

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Session Classification: Precision Calculations and MC tools