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## **Higgs coupling measurements and impact on the MSSM**

*Wednesday 30 April 2014 12:00 (20 minutes)*

The Run I of the LHC has not revealed any sign of new physics beyond the standard model (BSM). However, the discovery of a Higgs boson opens up new possibilities for probing various BSM scenarios with enlarged Higgs sectors and/or new particles affecting the loop-induced processes or opening new decay modes.

I will present how we derive constraints on new physics from the Higgs searches performed by the ATLAS and CMS collaborations, taking (partly) into account the correlations between the experimental categories. This is used to determine the couplings of the Higgs boson, considering possible invisible/unseen decays. I will then show the impact of the Higgs measurements on the phenomenological MSSM and on the MSSM with a light neutralino dark matter.

Finally, I will present a new, public tool for fitting the Higgs likelihood and deriving constraints on a broad class of new physics models. The experimental results are stored in a flexible XML database, and the model input can be specified in terms of reduced couplings, or cross sections and branching fractions, or signal strengths directly in a general and user-friendly way.

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