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Techniques for the statistical combination of Higgs boson property measurements

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Combinations of measurements play an important role in high-energy physics: they allow more precise determinations of quantities measured in complementary analyses, and yield new results that can only be obtained by using constraints from multiple sources. These combinations requires a careful statistical treatment. We review the methods and tools used in ATLAS for the combination targeting measurements of SM quantities or searches for new physics. We highlight in particular the methods used in the recent combination of measurements of the Higgs boson production and decay rates and the constraints on the Higgs boson coupling parameters.

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