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RooStats: Statistical Tools for the LHC

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RooStats is a project providing advanced statistical tools required for the analysis of
LHC data, with emphasis on discoveries, confidence intervals, and combined measurements in the both the Bayesian and Frequentist approaches. The tools are built on top of the RooFit data modeling language and core ROOT mathematics libraries and persistence technology.
These tools have been developed in collaboration with the LHC experiments and used by them to produce numerous physics results, such as the combination of ATLAS and CMS Higgs searches that resulted in a model with more than 200 parameters. We will review new developments which have been included in RooStats and the performance optimizations, required to cope with such complex models used by the LHC experiments. We will show as well the parallelization capability of these statistical tools using multiple-processors via PROOF.

Primary authors: MONETA, Lorenzo (CERN); KREISS, Sven (New York University (US))

Co-authors: Dr LAZZARO, Alfio (Universita degli Studi di Milano-Universita e INFN); KUKARTSEV, Gennadiy (Brown University (US)); PETRUCCIANI, Giovanni (Univ. of California San Diego (US)); Dr SCHOTT, Gregory Alfred (KIT - Karlsruhe Institute of Technology (DE)); CRANMER, Kyle Stuart (New York University (US)); VERKERKE, Wouter (NIKHEF (NL))

Presenter: KREISS, Sven (New York University (US))

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