

Preparing the LHC input to the 2012 CERN Council Strategy Group

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Strategy Group:

- Council expected to complete the definition of the process and the SG composition by June 2011
- Current planning foresees an open Symposium around Febr 2012, a SG workshop in Summer 2012, and the final discussion by Council in the Fall 2012

Task assigned by CERN's DG: Assessment and documentation of the LHC findings, during the 2010-11 run, in the search for the Higgs boson and for new physics

This document will be submitted to the Strategy Group by Winter 2012, for its evaluation of the implications for the update of the European Strategy

Elements of the assessment

- Common statistical tools, to combine input from all experiments
- Agreed benchmarks for input theory ingredients (cross-sections, BR's, etc)
- Representation of experimental results
 - model specific (e.g. cross-section limits/values for given model-parameter points)
 - model independent (e.g. cross-section limits/values for given production/decay topologies and selection cuts)

Existing activities

- **Roostat: statistical tools**
(see e.g. <https://indico.desy.de/getFile.py/access?contribId=12&sessionId=1&resId=0&materialId=slides&confId=3079>)
- **ATLAS/CMS combined statistics forum**
<http://indico.cern.ch/categoryDisplay.py?categId=1579>
- **“Characterization of new physics” Working Group**
<http://indico.cern.ch/conferenceDisplay.py?confId=107769>
<http://www-conf.slac.stanford.edu/topologies10/>
- **SUSY/BSM Fit Working Group (includes tools like Gfitter, Fittino, HiggsBounds, Mastercode, SPheno, etc.)**
<https://it-indico4.desy.de/conferenceOtherViews.py?view=standard&confId=3079>
- **Higgs cross-section Working Group**
<https://twiki.cern.ch/twiki/bin/view/LHCPhysics/CrossSections>

Plan

- In coordination with the experiments,
 - identify an editorial board and define the methodology and contents of the report
 - liaise with the various existing activities, create the necessary additional WGs
- Currently on the agenda:
 - Nov 5-6 2010: “Characterization of new physics” workshop
 - Sometime in Febr-Mar 2011: mtg of the “fitting” groups
 - August 2011: CERN Institute on LHC physics (Aug 29 - Sept 2 week likely dedicated to this theme)