

STARS2015 - 3rd Caribbean Symposium on Cosmology, Gravitation, Nuclear
and Astroparticle Physics / SMFNS2015 - 4th International Symposium on
Strong Electromagnetic Fields and Neutron Stars

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Type: Talk

Status of the LHC experiments and Standard Model results

Monday 11 May 2015 09:00 (40 minutes)

The talk will report on selected Standard Model (SM) physics highlights obtained by the ATLAS and CMS experiments in the first 3 years of data taking at the new Large Hadron Collider in Geneva. By far the most important and exciting result of LHC Run1 has been the observation of a new boson with a mass of 125 GeV, consistent with the properties of the SM Higgs boson. The discovery of the Higgs boson has brought the last missing piece of the Standard Model but the talk will give also an overview of the main results on di-boson production, heavy flavour physics (b-quark rare decays and CP violation; top-quark mass and properties) and QCD. Finally a brief discussion on LHC future program. LHC is just now restarting operation at higher energy. New data will certainly give more detailed informations on the Higgs boson and by the end of this decade LHC experiments will have collected ten times more proton proton collisions. The Standard Model processes have been holding up to scrutiny over several orders of magnitude in production cross section but we are just at the beginning of the TeV scale exploration.

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