Séminaire IJCLab

Anne-Marie Magnan
(Imperial College London)

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Searching for exotic Higgs bosons with the CMS detector

The Large Hadron Collider has been accumulating proton-proton collision data since 2010 with a total delivered integrated luminosity of 189.3 fb-1 for each of ATLAS and CMS detectors, of which 160 fb-1 were accumulated during the Run 2 (2015-2018) at a centre-of-mass energy of 13 TeV. Operations will resume in a year's time for the Run 3 and doubling of the integrated luminosity.
The upgrade program, the High-Luminosity LHC, is under construction and expected to further extend the physics reach with up to 3000 fb-1 of data accumulated by the end of the 2030's. The CMS detector will also undergo a large upgrade program to make the most of the high-luminosity phase. The standard-model (SM) Higgs boson has been measured with great accuracy already, though the Run-1 dataset combination of ATLAS and CMS results indicates that its branching ratio to as-yet-unknown processes can still be as large as 34\%. Many theories beyond the SM also predict additional Higgs bosons, neutral or charged, light and heavy. In this seminar, I will review the status of these direct searches for exotic Higgs bosons with the Run-2 data, and the prospects for Run 3 and HL-LHC.

Salle 101 - Bât. 200, Orsay

Organisation :
Joao Coelho - Thibaud Louis - Aurélien Martens - Dimitris Varouchas (IJCLab) - seminaires@lal.in2p3.fr
LAL web : http://www.lal.in2p3.fr
Indico: https://indico.lal.in2p3.fr/category/31/