

PARTICLE PHYSICS SEMINAR SERIES

Putting the Electroweak sector of Standard Model of Particles to test: from high energy probes to precision measurements

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Tuesday, March 17

4:00 pm - VIA ZOOM

The observation of a Higgs boson at the LHC in 2012 presents a new paradigm of precision physics aiming at the investigation of the Electroweak (EW) symmetry breaking. The EW sector of the Standard Model (SM) of particle physics can be tested either by performing precision measurements of fundamental observables or with direct tests of the underlying non-Abelian gauge and Higgs sectors. I will discuss new CMS measurements of the EW production of vector boson pairs using the Run 2 LHC data sample. On the precision front, measurements of the weak mixing angle and the mass of the W boson probe the consistency of the SM and are limited by the knowledge of the parton distributions functions and higher-order QCD corrections. I will report on recent W and Z boson production cross-section measurements at 13 TeV with unprecedented precision.



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