

Seminar general

10 years from the Higgs boson discovery: actual status and perspectives



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The 'Standard Model', the theory describing the microscopic behaviour of elementary particles, provides an accurate description of the force of electromagnetism, the weak nuclear force and the strong nuclear force. Based on the principle of 'gauge symmetry', the Standard Model (SM) has achieved exceptionally high agreement between theoretical predictions and experimental measurements.

The most impressive discoveries made at CERN were the massive W and Z gauge bosons in 1983 and the subsequent discovery in 2012 of the Higgs boson, the final particle of the model to be confirmed.

Despite its success, the SM cannot describe all observed phenomena, indicating the need for new ideas such as supersymmetry.

I will present the current status of the measurements dedicated to Higgs boson production and its intrinsic properties.

In the second part of my talk will discuss the near future plans and long-term perspective for accurate Higgs boson characterization.

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The Training and Research Centre of IFIN-HH

(the new building located between DFN and ELI-NP)