

Current Higgs measurements with the ATLAS detector and effective field theory interpretations

The discovery of the Higgs Boson by the ATLAS and CMS collaborations in 2012 has been considered to provide one of the last missing pieces of the Standard Model of Particle Physics (SM). But it also opens an avenue into new searches for phenomena beyond the Standard model in the Higgs sector. This talk covers the story of how the Higgs was found and summarizes current measurements in the Higgs sector with the ATLAS detector. One of the most promising tools for studying the newly discovered boson and for pin-pointing deviations from SM predictions is the effective-field-theory (EFT) approach. In this approach one parametrizes the interaction of the Higgs boson in an effective Lagrangian that contains the most general tensor structure possible. This includes the couplings predicted for the Higgs Boson of the Standard Model as well as beyond-SM couplings parametrized using dimension-six operators. The strength of the interactions described by these operators can then be fitted to LHC data. In this talk a introduction into the EFT framework as well as a review of the existing Higgs results in the EFT interpretation are given.