Top-Higgs Interactions at ATLAS

A/Prof. Peter Onyisi Dept. of Physics, University of Texas at Austin, USA

As the most massive known fundamental particle, the Standard Model predicts that the top quark has very strong Yukawa interactions with the Higgs boson. This interaction plays a central role in our understanding of the Hierarchy Problem and in the high-energy behavior of the Higgs potential, and so gives us a unique window into key questions of electroweak symmetry breaking. In addition, top-Higgs interactions not predicted by the Standard Model can be induced at tree level by more complex Higgs sectors and produce obserable effects at the LHC. I will summarize the recent ATLAS observation of top quark pair-Higgs boson associated production (ttH) and the associated direct measurement of the top quark Yukawa coupling, and searches for non-SM flavor-changing neutral current top quark decays to a Higgs boson and a charm or up quark.