RESEARCH TRAINING GROUP
Models of Gravity

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What many Higgses can do for you

Abstract

The Brout-Englert-Higgs mechanism proposed half a century ago was finally confirmed experimentally at the LHC in 2012. A scalar particle was found at 125 GeV, and after 6 years of exploration, all of its measured properties are compatible with the Standard Model predictions for the minimal Higgs boson. Yet, it is well possible that the observed Higgs is just the first member of a much richer Higgs sector, and investigation of non-minimal Higgs sectors remains a very active direction in particle phenomenology. In this talk I will give a gentle overview of this field, focusing on the ideas rather than technical details. I will outline the different options which are being considered and highlight specific signatures characteristic to each of them, both in terms of model building and collider and astroparticle phenomenology.