



Determination of properties of a Higgs-like resonance at LHC

Saturday, July 7, 2012 4:30 PM (15 minutes)

With the luminosity expected from the 2012 LHC run, the CMS and ATLAS experiments may reach the discovery sensitivity for the Higgs search in the low-mass region. If a new resonance is observed on LHC, it will be crucial to determine the spin and quantum numbers of the new particle and its couplings to Standard Model fields as accurately as possible. We study the production of a single resonance at the LHC and its decay into a pair of vector bosons. The simulation of the production and decay chain includes all spin correlations and the most general couplings of a spin-zero, -one, and -two resonance to Standard Model matter and gauge fields. Angular analysis is illustrated with an example of a resonance with mass around 125 GeV and expectations are given for various LHC luminosity scenarios.

Financial Support Justification for Early-Stage Researchers

The speaker will be supported by the CMS LPC fellowship

Summary

This work is a new development of what has been published in Phys.Rev. D81 (2010) 075022
New results will be shown.

Primary author: Dr BOLOGNESI, Sara (Johns Hopkins University (US))

Co-authors: GRITSAN, Andrei (Johns Hopkins University (US)); WHITBECK, Andrew James (Johns Hopkins University (US)); MELNIKOV, Kirill (Johns Hopkins University); SCHULZE, Markus (Johns Hopkins University); TRAN, Nhan Viet (Fermi National Accelerator Lab. (US)); GAO, Yanyan (Fermi National Accelerator Lab. (US))

Presenter: Dr BOLOGNESI, Sara (Johns Hopkins University (US))

Session Classification: Plenary 3 - The Standard Model - TR1

Track Classification: Track 1 - The Standard Model and EW Symmetry Breaking - Higgs Searches