

# SEMPARIS – Séminaires en région parisienne

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## Particle Theory Seminar of LPT Orsay

**Jeudi 6 Novembre 2014, 16 :00**

LPT, 114

Domaines : hep-th

Titre : *Could extra Higgses at the LHC lead to baryogenesis ?*

Orateur : **Jose Miguel No ( Sussex University )**

Résumé : *The existence of extra Higgses in Nature could lead to a cosmological first order electroweak (EW) phase transition and explain the origin of the matter-antimatter asymmetry in the Universe. We discuss two possible such scenarios, analyzing the LHC ‘smoking gun’ signatures of such a phase transition : We first consider a two-Higgs-doublet model, and show that the observation of the decay  $A0 \rightarrow H0 Z$  at the 14 TeV run of LHC in  $l\bar{l}b\bar{b}$  or  $l\bar{l}W+W-$  final states would signal a strong EW phase transition as required by baryogenesis. We then discuss Higgs portal scenarios, where resonant di-Higgs production may constitute a powerful probe of the nature of the phase transition.*

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