



## *Séminaire du Laboratoire de l'Accélérateur Linéaire*

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**Vendredi 5 Décembre 2014 à 11 :00**

## **Searches of the Higgs boson in the diphoton decay mode in CMS**

Results on the observation of the diphoton decay mode of the Higgs boson and measurements of some of its properties are presented. The analysis uses the entire dataset collected by the CMS experiment in proton-proton collisions during the 2011 and 2012 LHC running periods, corresponding to 5.1 fb<sup>-1</sup> at  $\sqrt{s} = 7$  TeV and 19.7 fb<sup>-1</sup> at 8 TeV. A clear signal is observed at a mass  $124.70 \pm 0.31$  (stat)  $\pm 0.15$  (syst) GeV, with a signal strength relative to the standard model prediction of  $1.14 \pm 0.21$  (stat)  $+ 0.09 - 0.05$  (syst)  $\pm 0.13/0.09$  (theo). In this presentation, I will focus on the steps used to optimize the performance of the photon energy reconstruction and on its modelling for the  $H \rightarrow \gamma\gamma$  analysis. The studies performed to assess the systematic uncertainties affecting the measurement will be described.

**Salle 101 du LAL - Bât. 200, Orsay**

Thé et café seront servis 1/4h avant le séminaire



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