

**Irfu**Institut de recherche
sur les lois fondamentales
de l'Univers**Séminaire
SPP****Lundi 09/12/2013, 11h00**

CEA-Saclay Bat 141, salle André Berthelot

Probing the Higgs Sector from the Top

AURELIO JUSTE

ICREA (Barcelone)

Since the discovery of a Higgs boson at the LHC, the focus has shifted towards precise measurements of its properties in order to determine whether it is indeed the SM Higgs boson, or whether it has a completely different (e.g. composite) nature. Of particular importance is the top-Higgs Yukawa coupling which, owing to the large top quark mass, is close to unity, making the top quark the most strongly-coupled standard model (SM) particle to the electroweak symmetry breaking (EWSB) sector. Therefore, precise measurements of the top-Higgs Yukawa coupling will be of critical importance to start probing the underlying dynamics of EWSB, as well as to unravel possible beyond-SM contributions to the loop-induced couplings of the Higgs boson to photons and gluons. In this talk we will review the strategies and challenges associated with this measurement at the LHC, and present the most recent results on the search for associated $t\bar{t}H$ production by the ATLAS and CMS collaborations using the Run 1 dataset. We will also discuss about the prospects for this measurement at the LHC in Run 2, and compare them to those of a future e^+e^- linear collider.

Le café sera servi 10 minutes avant.

NB : La présentation d'une pièce d'identité est exigée à l'entrée du centre. Tous les auditeurs extérieurs sont priés de prévenir à l'avance Martine Oger, tél. 01 69 08 23 50, e-mail : martine.oger@cea.fr. (U.E. : délai de 24 h, hors U.E. : délai de 4 jours).