Contribution ID: **32** Type: **Poster**

SEARCH FOR THE STANDARS MODEL HIGGS BOSON AT CMS IN THE 4-LEPTON CHANNEL

Wednesday, 11 April 2012 19:00 (20 minutes)

One of the main targets of the CMS experiment is to search for the Standard Model Higgs boson. The 4-lepton channel (from the Higgs decay h $\longrightarrow$ ZZ*$\longrightarrow$4l,
l = e,mu) is one of the most promising. The analysis is based on the identification of two opposite-sign, same-flavor lepton pairs: leptons are required to be isolated and to come from the same primary vertex. The Higgs would be statistically revealed by the presence of a resonance peak in the 4-lepton invariant mass distribution.

The Higgs mass is a free parameter of the Standard Model, and the 4-lepton channel search is sensitive almost in all mass range. With data collected in 2010 and 2011 (4.7 fb-1 at $\sqrt{s}$ = 7 TeV) the Higgs has been excluded in a wide region of mass at 95% of confidence level.

The 4-lepton analysis will be presented, spanning on its most important aspects: lepton identification, variables of isolation, impact parameter, kinematics, event selection, background control and statistical analysis with data-MC comparison.

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Session Classification: Sessione poster

Track Classification: Fisica del Modello Standard e oltre