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Search for the Standard Model Higgs boson decay H ->ZZ-> l+l- qq

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A search for the standard model (SM) Higgs boson decaying into two Z bosons with a subsequent decay into two leptons and two quark jets, H → ZZ → l–l+qq, is presented. The search is performed in a data sample corresponding to an integrated luminosity of 4.6fb-1, collected with the Compact Muon Solenoid (CMS) detector at the Large Hadron Collider (LHC) at CERN, in proton-proton collisions at the centre-of-mass energy of 7TeV. Discrimination of signal from background events is based on a kinematic selection. Further background rejection is achieved by exploiting the different angular distribution of Higgs boson signal with respect to background.
No evidence for the Higgs boson is found, and upper limits on the Higgs boson production cross section are set between 130 and 600 GeV mass.

Inserire un breve CV (solo per dottorandi che richiedono un contributo spese)

Annapaola de Cosa, born in Naples on the 16th February 1984.
I am a PhD student in Fundamental and Applied Physics PhD Program at the University of Naples, Federico II. I obtained my master degree in Physics at the University of Naples, Federico II with 110/110 cum laude.
I am working at CERN as Research CERN Associate in the framework of the special INFN-CERN Fellowship program for the LHC. My research project is the search for the standard model (SM) Higgs boson decaying to two Z bosons with a subsequent decay to two leptons and two quark jets, H → ZZ → l–l+qq, with data collected with the Compact Muon Solenoid (CMS) experiment at the Large Hadron Collider (LHC). Results with an integrated luminosity of 4.64 fb-1 have been submitted and accepted for publication to JHEP.
From January 2011 until January 2012 I worked as Doctoral Student on the development of the framework for the CMS analysis of the search for the Higgs boson in the channel H → ZZ → 2l2b and I collaborated with the CMS Higgs Combination group to compute the limit on the Higgs cross section for the H → ZZ → 2l2j channel (CMS Physics Analysis Summary (PAS) HIG-11-017: "Search for a SM Higgs Boson H→ZZ→l-l+qq at CMS"). I also worked with the RooStats team, importing tools from the CMS Higgs Combination tool and developing code to test RooStats limit computation modules.
I actively participated in the development of a common software infrastructure for physics analysis as member of the CMS Analysis Tools group and a Physics Analysis Toolkit (PAT) core developer during my Technical Student fellowship from July 2009 until September 2010. I have been one of the main developers of the CMS ConfigEditor, a Graphical User Interface (GUI) for browsing and editing of configuration files for CMS analysis jobs and I presented my work at the CHEP2010 conference in Taipei, Taiwan (CHEP2010 Proceedings, "CMS Configuration Editor: GUI based application for user analysis job"). I won the Achievement Awards 2010 for outstanding contributions to the Analysis Tools project for the job done.
In 2010 I joined the CMS Vector Boson Task Force Group (VBTF). I contributed to the analysis of the first collision events and I partecipated in the measurement of the inclusive Z → μ+μ- cross section, completing the work started during my bachelor thesis.
The results of this work have been published on JHEP (Journal of High Energy Physics, Volume 2011, Number1, 1-40, DOI: 10.1007/JHEP01(2011)080Open Access, The CMS Collaboration: "Measurements of inclusive W and

Z cross sections in pp collisions at sqrt (s)=7 TeV ").

Si richiede un contributo spese? (solo per dottorandi)

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