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Isolated Photons at CMS

Saturday 24 July 2010 10:00 (13 minutes)

We present preliminary results on the measurement of isolated photon production cross section in proton-proton collisions at sqrt(s) = 7 TeV, using data collected with the CMS detector. We estimate contribution of background from hadron decays (such as pi0 to two photons) with several variables, including the ratio of momentum measured in the tracker to the energy measured in the electromagnetic calorimeter (ECAL) for converted photons, the shower shape measured in ECAL, and isolation measured in tracker and calorimeter. We obtain the acceptance and efficiency of signal photons from Monte Carlo simulation. The differential photon cross section will be presented as a function of photon transverse energy in three eta bins. Furthermore, preliminary results are reported on the measurement of the photon + jet + X cross section. The decay of hadrons and the fragmentation of the photons inside a jet are the main source of background for this measurement. Photon shower shape variables and energy deposited (in the isolation region) are used discriminants to obtain the purity of the sample. Ratio of cross-sections between the central and forward regions will be presented.

Authors: WYSLOUCH, Bolek (CMS); KRAMMER, Manfred (CMS)

Presenter: Dr LU, Rong-Shyang (Physics Department - National Taiwan University (NTU))

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