## IFAE2011 Incontri di Fisica delle Alte Energie



Contribution ID: 113 Type: not specified

## Measurement of the Underlying Event Activity at the LHC with $\sqrt{s}$ = 7 TeV and Comparison with $\sqrt{s}$ = 0.9 TeV

Wednesday, 27 April 2011 19:32 (1 minute)

First measurement of the underlying activity in proton-proton collisions at  $\sqrt{s}$  =7TeV compared with 900 GeV is presented, using data collected by the CMS experiment at the LHC in 2009/2010. The Multiple Parton Interaction rate, the main component of the Underlying Event activity, and its energy dependence is studied measuring the charged multiplicity and the charged energy density in a region perpendicular to the plane of the hard 2-to-2 scattering. The direction of the hard scattering and the energy scale of the event is found using of the leading track-jet. Corrected results are presented, unfolding the detector effects to directly compare with Monte Carlo models predictions.

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**Session Classification:** Sessione Poster

Track Classification: Dottorandi e Posters