



SPEAKER: Chris Hays (Oxford)
TITLE: **A Precise Measurement of the W Boson Mass with CDF**
DATE: Tue 27/03/2012 11:00
PLACE: TH Conference Room

ABSTRACT

The W boson mass measurement probes quantum corrections to the W propagator, such as those arising from supersymmetric particles or Higgs bosons. The new measurement from CDF is more precise than the previous world average, providing a stringent constraint on the mass of the Higgs boson in the context of the Standard Model. I describe this measurement, performed with 2.2/fb of data using 1.1 million candidates in the electron and muon decay channels, with three kinematic fits in each channel. The measurement uses in-situ calibrations from cosmic rays, J/psi and Upsilon data, and W- and Z-boson decays, with multiple cross-checks including independent determinations of the Z boson mass in both channels. The W-boson mass is measured to be $80387 \pm 19 \text{ MeV}/c^2$.