



CERN Joint EP/PP Seminars

SPEAKER: Thomas Junk (Fermilab)
TITLE: **Searches for the Standard Model Higgs Boson at the Tevatron**
DATE: Tue 23/06/2009 16:30
PLACE: Main Auditorium**

ABSTRACT

A broad program has been in place for many years at the CDF and D0 experiments to seek evidence for the Standard Model Higgs boson in the mass range between 100 and 200 GeV/c². Searches are conducted at low mass ($m_H < 150$ GeV/c²) for processes in which a Higgs boson is produced in association with a weak vector boson and which decays to a pair of b quarks: WH- \rightarrow lvbb, ZH- \rightarrow vvbb, and ZH- \rightarrow llbb. Higgs boson decays to pairs of tau leptons are included in this mass range as well. For higher masses, the decay H- \rightarrow WW is sought in gg- \rightarrow H, WH, ZH, and vector-boson fusion production. Steady improvements have been made in the trigger algorithms, the event selections, and the discriminant analyses, bringing the sensitivity of the combined CDF and D0 searches close to the expected Standard Model production rates, particularly for m_H near $2M_W$. The latest CDF and D0 combined result excludes a Standard Model Higgs boson with a mass between 160 and 170 GeV/c².