

Special Report

Tevatron Squeeze 2.9 Sigma Higgs Signal

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Abstract

The CDF and D0 experiments have presented new results on July 2, 2012 that provide a slight improvement on their previous results shown at Moriond in March. The significance has risen to 2.9 sigma coming mostly from the dominant decay channel to bottom quarks.

Key Words: Tevatron, CDF, Do, Higgs signal, 2.9 Sigma.

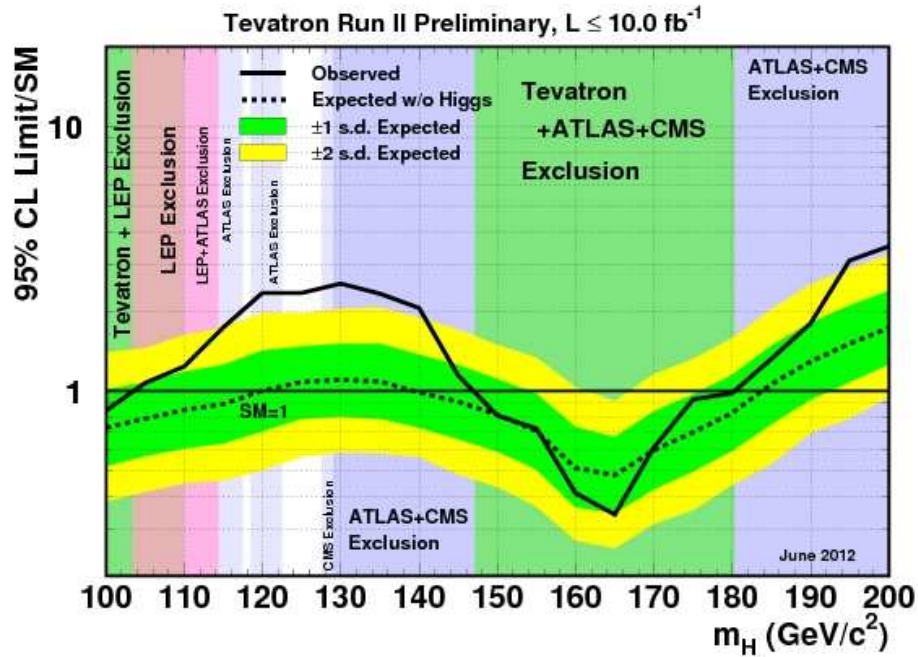
Tevatron squeeze 2.9 sigma Higgs Signal

The CDF and D0 experiments have presented new results today that provide a slight improvement on their previous results shown at Moriond in March. The significance has risen to 2.9 sigma coming mostly from the dominant decay channel to bottom quarks. No new data has been added since the Tevatron closed down last year but analysis has continued to look for further decay channels in the data and improve the analysis of the ones already used. In particular they have improved the analysis of bb decays where the Higgs boson is produced in conjunction with a W or Z vector boson.

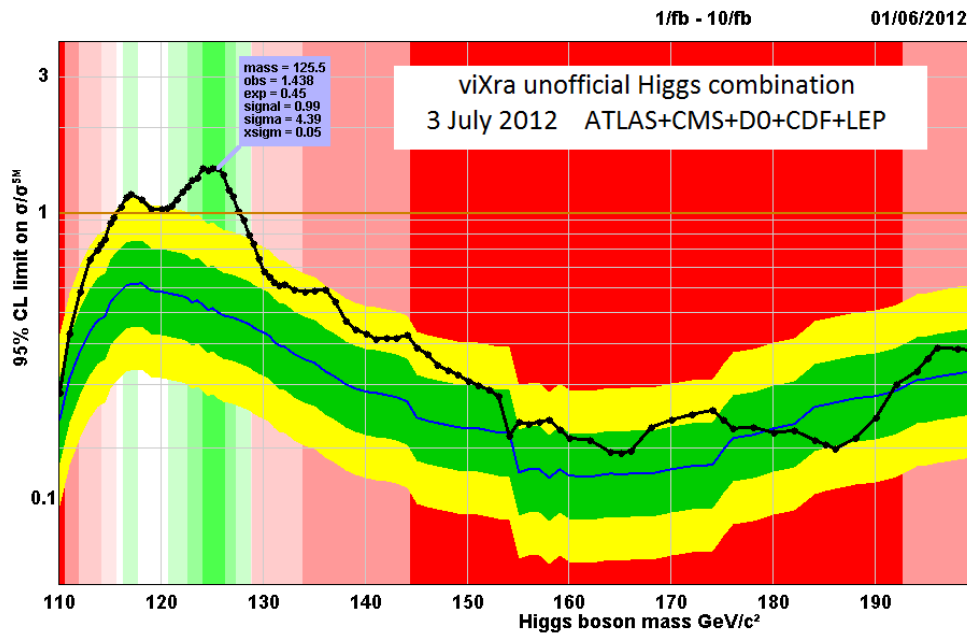
This is the current state of the combination. They have said that they are not finished yet with the possible improvement by 10% in some areas so we should see further updates. All eyes will now turn to CERN where a much more dramatic update is expected in Wednesday, but the Tevatron results remain important because the LHC is not so sensitive to the bb channel which is important for showing that the Higgs couples correctly to fermions.

Interest in the Higgs news is already rocketing with #Higgs and “God Particle” both trending on Twitter while over 1250 viewers are watching the live stream from the Tevatron.

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Update: Here is the latest version of the unofficial global Higgs combination with the new results from D0 included. The significance at 125.5 GeV has crept up to 4.4 sigma.



References

1. <http://blog.vixra.org/2012/07/02/tevatron-squeeze-2-9-sigma-higgs-signal/>