# Search for the Higgs: What's next?

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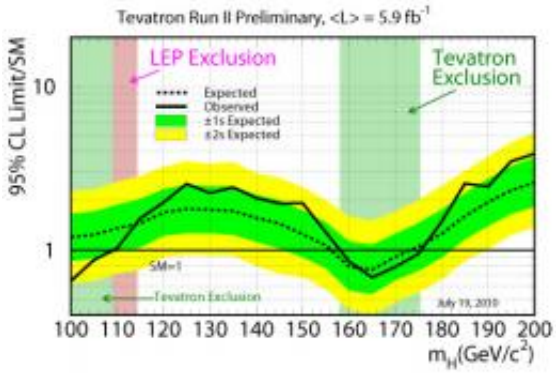


Status of Fermilab's search for the Higgs particle.

In July, the particle collider experiments at DOE's Fermi National Accelerator Laboratory revealed their latest search results for the elusive Higgs particle. Based on the analyses of data collected by the CDF and DZero experiments at Fermilab, scientists have ruled out about a quarter of the Higgs boson mass range allowed by previous experiments.

But just how close are the Fermilab experiments to finding the Higgs boson if it exists? This graphic and its squiggly lines indicate how the search will proceed.

The graphic shows a horizontal, solid line that indicates the prediction for the Higgs boson according to the Standard Model for a range of Higgs masses. The squiggly, solid line indicates the maximum amount of Higgs boson production allowed according to the latest data analyses.

Where the squiggly line dips below the horizontal one, experimenters start to rule out the Standard Model Higgs boson.

The analysis of additional data already collected by the CDF and DZero experiments will make the squiggly line move downward. This will widen the exclusion regions, currently at 100-109 GeV and 158-175 GeV. It is near these exclusion regions that CDF and DZero scientists will most quickly discover or rule out a Higgs boson. To examine the remainder of the allowed region, the experiments need to collect more data. The next year or two will be very interesting.

Source: DOE/Pacific Northwest National Laboratory

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