

Focus topic meeting “ttbar threshold”

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Practical

Focus topics for the ECFA study on Higgs / Top / EW factories

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The ECFA focus topics document:

<https://arxiv.org/abs/2401.07564>

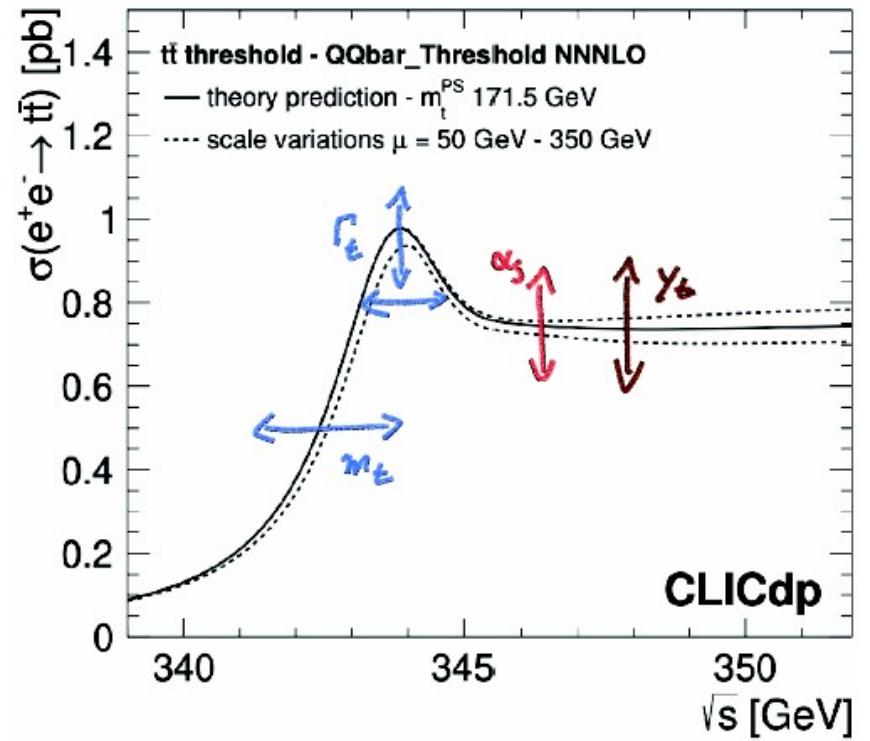
Note the mailing list for this group:

<https://gitlab.in2p3.fr/ecfa-study/ECFA-HiggsTopEW-Factories/-/wikis/FocusTopics/TTthresh>

Results for the focus topic report are due by the ECFA Higgs/EW/top factory meeting Paris, 9-11 October 2024, <https://indico.cern.ch/event/1399276/>.

Now is a good time to start that final sprint to the finish line.

The $t\bar{t}$ threshold scan



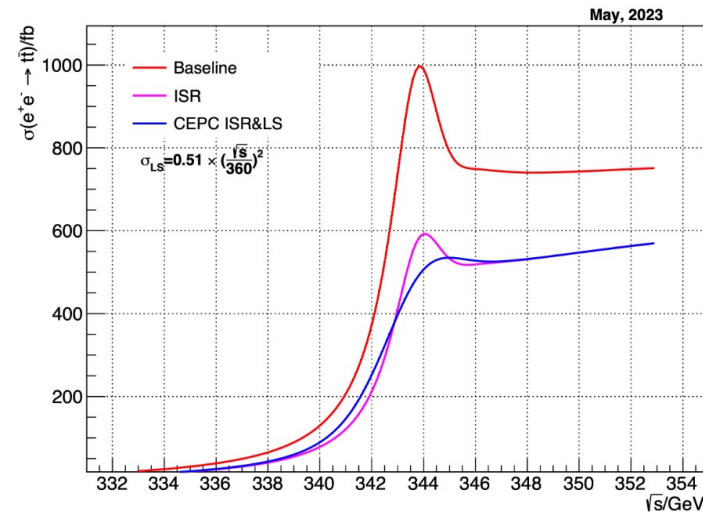
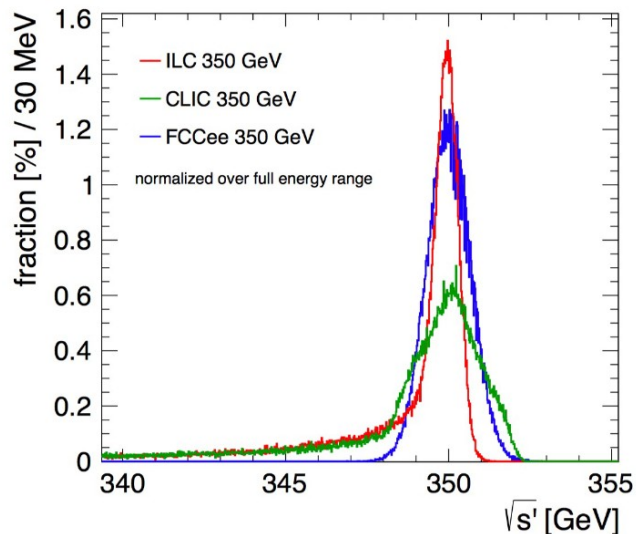
New results on threshold scan

Good progress by CERN group (Ankita, Matteo, → report soon)

I haven't heard from the Iranian team in a while; Laura Pintucci is too busy

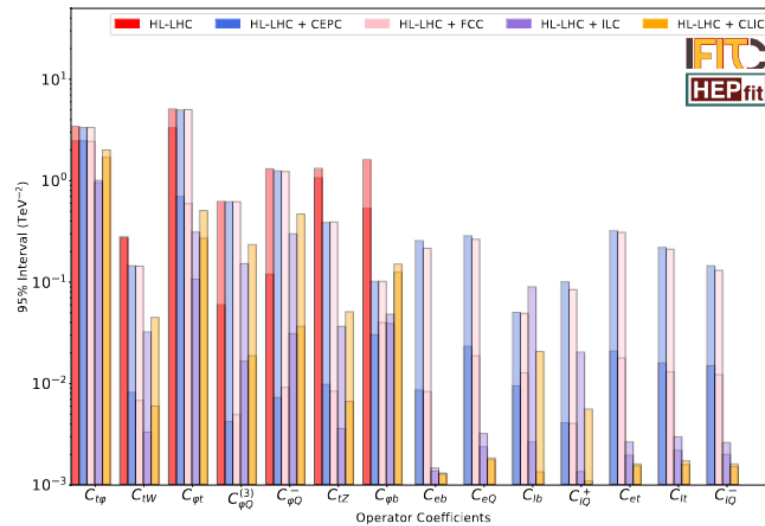
Report will include also “threshold scan optimization” studies by F. Zarnecky and others

I contacted Frank Simon for access to luminosity spectra, but no reply yet...



See, this LCWS [contribution](#) by Yaquang Fang (IHEP), with an extreme optimization of the threshold, down to a single measurement.

Top quark (EW) couplings



From Snowmass report:

<https://arxiv.org/pdf/2209.11267.pdf>

And global SMEFT fits at future colliders

<https://arxiv.org/pdf/2206.08326.pdf>

Top couplings - efforts

Efforts going beyond the Snowmass report:

Update collider operation scenarios, add muon collider ... Victor Miralles + iFIT/C

Study interplay with the Higgs/EW sector ... Eleni Vryonidou + SMEFiT

Global fit including Higgs/EW and top projections ... Jorge de Blas, Junping Tian

Agree on assumptions, basis, presentation today

Flavour choices, #experiments, experimental systematics, eett operators, linear-vs-quadratic...

Note: ATLAS and CMS are preparing input document, that might include some HL-LHC projections

Note: interesting new work on entangled top quark pairs and their role in the SMEFT:

<https://arxiv.org/pdf/2404.08049.pdf>

Summary

Threshold scan for top mass etc.

Define scope of experimental studies, make sure we have complete results

Top couplings studies:

Coordinate so we have a coherent set of results for ECFA report