Status of DBD-Benchmarks studies

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ILD ana/sw phone meeting, Feb 13 2013

Benchmarks

- $\nu\nu h$, study σBR for
  - $h \to b\bar{b}$, $c\bar{c}$ and gg (Hiroaki).
  - $h \to WW^*$ (Hiroaki).
  - $h \to \mu^+\mu^-$ (Tino)
- $t\bar{t}h$, study g_{tth} (Tony and Tomohiko).
- WW, study beam-polarisation measurement (Aura).
- Re-do an LOI study, in our case $t\bar{t}$, study A_{fb} in the fully hadronic channel at 500 GeV (Roman and Amad).
- + other non-benchmark studies
  - $t\bar{t}$, A_{fb} etc. in semi-leptonic channel at 500 GeV (Roman, Jeremy, et al.)
  - Higgs self-coupling, both at 500 and 1000 TeV (Junping).

Benchmarks:ILD-internal

Status of Proof-reading and Refereeing:

- All analyses are declared DBD ready by the referees.
- Author's have proof-read and OK:ed the current text.
- LCNotes submitted, but only title-pages.
- Should complete LCNotes next few weeks.
- NB: LCNotes not externally reviewed.

Benchmarks: Comparison with SiD

Series of meetings with SiD, to avoid controversies over final numbers
(cf. certain LOI analyses). Latest (last ?) a few hours ago.

- $t\bar{t}h$: OK.
- WW : OK.
- Re-do an LOI study, where SiD made same choice as we did ($t\bar{t}$, fully hadronic) : OK.
- Non-benchmark studies : OK, since there was nothing to compare.
- $\nu\nu h$, study σBR : some issues

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Issues with $\nu\nu h$

- $h \to b\bar{b}$, $c\bar{c}$, WW^* and gg:
  - Missing backgrounds in ILD (3f and 5f): Fixed using SGV.
  - Missing channels in SiD (4f): OK, identified, and has no influence after pre-selection.
  - Missing channels in SiD (3f): 224 Million evs in ILD, only 95 Million in SiD: Unclear what causes this. Does not seem to be missing channels. Hiroaki and Homer investigating.
  - Final results for $b\bar{b}$, WW^* and gg: OK.
  - Final results for $c\bar{c}$: large difference: ILD 5.7 %, SiD 19.7 %. Method-difference ? Classifier vs. multi-dim template fit ? Hiroaki and Homer investigating.

- $h \to \mu^+\mu^-$:
  - Up two weeks ago: No SiD results.
  - Crash-analysis, copying Tino done by Tim.
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  - 3t background. My guess: SiD problem, no consequence after pre-selection.
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We are almost there !!