ILD event sample production plans for 1TeV DBD benchmarks

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Definition of benchmarking conditions

- ILD and SiD should use *identical* generator-level data sets
- Not only same generator set-up, but identical to the single event
- Agreement between ILD and SiD at KILC:
  - Benchmarks to be done with
    - 500/fb of (P(e+), P(e-)) = (+20, -80)
    - 500/fb of (P(e+), P(e-)) = (-20, +80)

How is this obtained?

- Generator:
  - (+100,-100), (-100,+100): “opposite sign”
  - (+100,+100), (-100,-100): “like-sign”
- Final sample made out of these in
  - 29% of the two opposite signs each
  - 21% of the two like-signs each

How many events is this?

- Signal samples:
  simulate 1/ab
- Background:
  as requested (with reason!) by analyses
  => ~4 million events
- Procedure:
  - start with 10% of each process
    -> everybody can start
  - Then add successively more
- For details, see earlier talks by Frank & Mikael

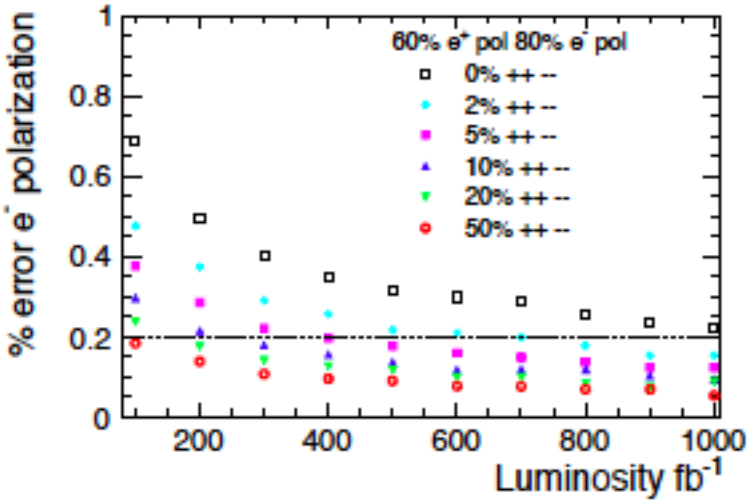
All fine?

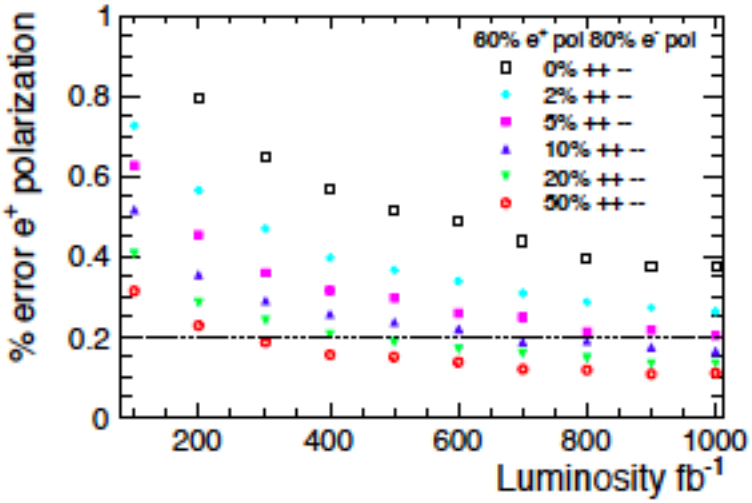
- No – overlooked what the WW benchmarkis supposed to do: measure the luminosity weighted average polarisation
- => need also some luminosity at

(+20,+80), (-20,-80)

$\Rightarrow$Need to discuss with SiD how to exactly define this benchmark precisely!

Need for like-sign polarisation samples





From Thesis I.Marchesini, study at 500 GeV:
With 0% ++ / --

- worse than polarimeter measurement
- Error larger than e.g. expected depolarisation in collision
- No control what so ever on systematics

=> Completely meaningless analysis to do!

Proposal for MC production

- Go ahead with 21% / 29% mix in MC production
- All other benchmarks plan with 2x500/fb for (+20,-80),(-20,+80)
- People doing WW benchmark in ILD and SiD get together (incl analysis convenors etc)

  to agree on how to present final result

  -> maybe a ~10% additional MC
  (or some reweighting) is needed