highlights of detector opt meeting (Jan. 22)

https://agenda.linearcollider.org/conferenceDisplay.py?confId=6291

- physics point (J. List): Ejet < 100 GeV is crucial even at 1 TeV (worst JER dominates invariant mass resolution); detector-level JER—>analysis-level JER (with jet finding, overlay removal); some benchmark processes suggested.

- PFA (J. Marshall): confusion dominates JER of Ejet > 100 GeV (intrinsic resolution dominates <100 GeV); ECAL opt for cell size, number of layers, inner radius, b-field strength, scintillator thickness, two or more granularities / hybrid ECAL.

- Scintillator ECAL (T. Takeshita): similar performance (with tile layers) achievable as SiECAL; current inner radius is not optimized (possible to increase to 2m without more cost?).

- SiECAL/sDHCAL opt (T.H.Tran): similar study (JER .vs. ECAL inner radius, n-layers, b-field); done with mokka and pandora.

Benchmark Processes for Detector Optimization

▷ recoil mass study using Z—>ll: check performance of momentum resolution. (S. Watanuki?)

▷ recoil mass study using Z—>qq, H—>invisible: check performance of jet-energy resolution. (T. Tomita?)

▷ HWW coupling study using ννH—>νν(bb) and ZH—>(ll)(bb/cc/gg): check performance of jet-energy resolution and flavor tagging. (H. Ono? J. Tian? T. Suehara?)

▷ total width study using ννH—>νν(WW*) and ννH—>νν(ZZ*): check performance of jet-energy resolution and W/Z separation. (H. Ono? J. Tian? any volunteer?)

▷ electroweak anomalous coupling study using e+e- —> eνW —> eνqq, e+e- —> ννZ (WWZ coupling): check performance of forward lepton tagging and jet-energy resolution. (any volunteer?)

▷ τ reconstruction using H—>ττ: check performance of PFA? (S. Kawada?)

▷ photon reconstruction using H—>γγ: check ECAL resolution? (Tino?)

▷ + one more complicated analysis, top-Yukawa or top-pair threshold? to check vertex charge, overall performance? (T. Horiguchi? Y. Sudo?)

very preliminary, open for anyone who is interested in the detector optimization