Welcome to the American Working Group on Linear Collider Calorimetry

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Cal WG meeting of the ALCPG

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Introduction

- This is one of the many working groups created by the American Linear Collider Physics Group. The full list, the charge of the ALCPG and other useful info on `http://blueox.uoregon.edu/~jimbrau/LC/ALCPG/`.

- Additional information about the Calorimeter WG at `http://www.slac.stanford.edu/xorg/lcd/calorimeter/`.

- "The ALCPG has been created to establish and manage a process that leads to a forefront experimental program at a high0-energy $e^+{-}e^-$ LC. . . . ALCPG's role should be understood as the North American part of a larger global effort." An ICFA-appointed WG chaired by M. Tigner will hold its first meeting at ICHEP in July, 2002.

- "All of ALCPG's main tasks will be performed in the WGs."

Goals of the ALCPG (through WGs)

Milestones marked by documents on

- Physics program,
- Detector requirements,
- Design for at least one detector.

Quotes from the "Charge for the ALCPG":

- "... close collaboration between the WGs."
- "The WGs should evaluate a reasonable range of detector options using a set of well documented, common simulation tools. Both alternative dtector technologies and different configurations for a specific technology should be compared in detail, and the tradeoffs in performance and cost should be documented."
- "... establish a documentation system ASAP."
- "A regular set of meetings ... for presenting results and for improving cooperation."

Goals of the ALCPG (contd.)

The ALCPG will also coordinate interactions between the consortia and the funding agencies for R&D.

Calorimetry R & D topics

- energy flow: detailed simulation followed by prototyping (TB),
- physics cases for excellent energy flow eg. Higgs self-coupling, WW/ZZ at high energy, reconstruction of top and W for anomalous couplings?, others (SUSY, $B(H \to W^+W^-)$),
- integrate E-flow with flavor tagging,
- study readout differences for Tesla/NLC,
- importance of K0/Lambda in energy flow calorimeter,
- parametrize E-flow for fast simulation,
- forward tagger requirements,
- study effect of muons from collimators/beamline,
- further development of simulation,
  - clustering

- tracking in calorimeter,
- digital calorimeter,

- study parameter trade-offs (radial seg, layers, coil location, transverse seg.)
- refine fast-sim parameters from detailed simluation,
- integrate electronics with silicon detectors in Si/W,
- reduce silicon detector costs,
- engineer reduced gaps,
- mechanical/assembly issues,
- B = 5 Tesla?
- can scintillating tile Ecal compete with Si/W in granularity, etc.?
- crystal EM (value/advantages/disadvantages),
- barrel/endcap transition (impact and fixes).

Near-term plans

- The central idea is to “encourage and facilitate participation of interested groups in the process of planning the experimental program.”
- Bi-weekly meetings at Fermilab
  - alternate mondays 3:30-5:00 pm,
  - Racetrack, WH7XO,
  - Video and audio connections available.

  See ALCPG Cal web page for details and archived talks.
- Exchange ideas, share results, collaborate. Regular status reports, occassional invited talks.
- Many important tasks awaiting volunteers - opportunities for all tastes.
- Must interact with other detector, machine, physics, id WGs.

- Will maintain close contacts with the consortia to generate funds for R&D.
- Busy sessions at the upcoming LC meeting at Santa Cruz - please participate
  - invited sub-plenary talks,
  - status/plans reports from groups who have already started R&D,
  - expressions of interest from groups planning to start soon.
- Questions/comments/suggestions welcome.