

Charge to the Workshop!

The Santa Cruz Linear Collider Retreat

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Outline:

- Activity since January
- Areas of need; consortia; milestones
- Global activity and International links
- Preparing for the flood of proposals
- Inspirational statement

Since the Chicago Workshop:

- HEPAP report gave *new energy* to NA LC effort
- **Charley Baltay and Paul Grannis** stepped down after making the American LC effort viable
 - Jim Brau, Mark Oreglia co-chairing ALCPG, Executive Cttee:
 - Ed Blucher (Chicago) Dave Gerdes (Michigan)
 - Lawrence Gibbons (Cornell) Dean Karlen (Canada)
 - Young-Kee Kim (Berkeley) Jeff Richman (UCSB)
 - Rick Van Kooten (Indiana) H. Murayama (UCB)
- The “old” NA WGs were reviewed
 - minor changes in leadership
 - Establish new LHC/LC complementarity cttee
- Realization: we must catch up to TESLA level

Tweaked ALCPG WGs

- Calorimetry (Frey, Chakraborty, Turcot)
- Vertex Detector (Brau, Roe)
- Tracking (Schumm, Karlen, Riles)
- Muon Detector (Fisk, ???)
- **Particle ID (R. Wilson, ???)**
- IRs & Bkgrnds (Markiewicz, Hertzbach)
- **Beamline/IR Instrumentation** 
 - Woods, Torrence, Cinabro
- **DAQ** **Low profile?**
- Detector & Phys Sim. (Graf, Peskin)
- Higgs Phys (Van Kooten, Carena, Haber)
- SUSY Phys (Nauenberg, Feng, Paige)
- New Phys at TeV & Beyond
 - Hewett, Tkaczyk, Strom
- Radiative Corrections (Loopverein)
 - Bauer, Dawson, Wackerath
- Top Physics (Orr, Gerdes)
- **QCD and 2-photon Physics**
 - Put into Top Group
- Precision EW (G. Wilson, Marciano)
- **Strong Gauge - Put into NewPhys WG**
- $\gamma\gamma$, γe^- , and e^+e^- (Gronberg, Velasco)
 - Split off e^+e^- into separate WG (Heusch)



- LHC/LC Committee

Note: we are preserving parity with the European WGs

- New *committee* organized by
 - Georg Weiglein, Int'l
 - **Schellman**, Paige, N. America:
 - Barklow, Berger, De, Hadley, Hinchliffe,
 - Logan, Wagner, Wells, Zeppenfeld

Charge given to WGs

Physics WGs:

- Assess importance, priority of LC options
 - Energy reach, energy spectrum
 - Luminosity, backgrounds
 - Polarization, Gamma-gamma, e-gamma options
 - LHC complementarity, ... etc

Detector WGs:

- bunch structure, machine backgrounds
- Establish R&D priorities , etc

Reports, maintenance of web data, meetings

- This retreat was the goal for new activity
- Involvement by new participants encouraged
 - Areas of need summarized
 - Brau's detector R&D list
 - Himel's machine list
 - See: <http://blueox.uoregon.edu/~jimbrau/LC/ALCPG/>
- But we are in urgent need of:
 - Required (by physics) *machine parameters*
 - Convincing reasons to invest in LC *now*
- ... and it all takes new money

The Birth of Consortia



- Successes at Chicago Workshop:
 - lots of **new faces**
 - New **university interest** in machine development!!!
- In the following weeks:
 - Groups formed to tie-in with labs, educate themselves about opportunities and areas of need, and to create proposals
 - NSF precipitated the notion of consortium proposals (muon collider)
- Consortia are a great idea, but we need to proceed with care

Charge to ALCPG Exec Cttee

- Coordination of NA LC Phys/Detector activity
 - Liaison amongst WGs, consortia, universities, labs
 - Organize/maintain information (webpage!)
 - International liaison
- Set milestones and create deliverables
 - Rank LC machine parameters and options
 - White paper on LC before end of LHC
 - White paper on need for Phys/Det R&D now
 - Addenda to Orange Report
- Organize and pre-review proposals

- The North American LC Steering Group
 - Dorfan chairs ctte of lab directors + rep. grps
 - Dorfan, Tigner, Witherell ... lab directors
 - Brau, Oreglia ... ALCPG
 - D. Burke (SLAC), S. Holmes (FNAL) ... machine
 - J. Bagger, S. Dawson ... outreach
 - G. Dugan, J. Friedman, Y-K. Kim, D. Marlow
- ECFA/DESY is now establishing a **ESG** to communicate with the NASG and the Asian SG
 - Chair of ECFA + DESY dir. and CERN DG
- For now, we can envision ASG-ESG-NAWNG cooperation and some decision making
- Ultimately, they merge into the **Int'l SG**

Consortia and WGs

- Consortia are wonderful for new involvement and coordination of funding and facilities
 - NSF insists on one; DOE consortia are optional
- But we are concerned about **coherence**
 - Ultimately the WG's coordinate the efforts
 - We will have to see the consortia activities under the *guidance of the WG leadership*
 - We need some kind of pre-review of proposals,
 - Especially with two separate consortia proposals
 - The *US LC Steering Committee* is tackling this

So, Here at Santa Cruz:

- Working Group leaders must interact with the consortia to create a coherent picture
 - Lots of communication in the last weeks
 - WG leaders will meet with Exec Cttee
 - **Friday evening, 9:00 PM**, (duration < 1 hour!)
- Physics and Detector groups must address their charge
 - Machine requirements
 - Progress on tools (simulations, energy flow, Loopverein,...)
- Machine leaders must organize university involvement
- All WGs must organize better **informational** sites
- We must launch linearcollider.org
 - ALC notes (crosslink with DESY, Asia)

A Tough Start?



- No question, big infusion of money needed
 - Accelerator “cap” crippling new tech
 - Phys&Det groups need manpower
- Nuda veritas: the consortia are likely to get very little in '03 (Cornell expects \$1M at most)