12th International Workshop on RF Superconductivity

July 15, 2005

The I L C - Challenges of International Collaboration

- What is it?
- History
- Organization
- Challenges
- Outlook
What is it?

e+e- collisions at ~ 1 TeV in the CM
What is it?

- Much more than a piece of hardware - will need to cross three frontiers
  - energy frontier in e+e- physics
  - technology frontier in colliders
  - social frontier in project and resource organization

OVERARCHING PRINCIPLES:

- project - not a new "laboratory" institution
- all share intellectual ownership and access
- as much work as possible from existing institutions
- MOU expresses mutual obligations to cooperate
History

• LC first discussed in 1965 ($\Delta E/\Delta n \propto E^4/R$)

• In 1983 Accelerator Conf - long paper on Novosibirsk (BINP) ideas on how to build a 1 TeV LC and the SLC was underway. By 1993 KEK, SLAC, DESY, BINP hard at work on cold and warm

• In 1993 an Interlaboratory Collaboration Toward TeV Scale Electron – Positron Linear Colliders - focus global efforts on common goals. First TRC under Greg Loew

• 2001 ICFA appoints a second TRC, again under Greg Loew

• ICFA commissions a study on how to proceed internationally leading to the formation of the ILCSC

• 2004 technology choice and first ILCWS @ KEK

• 2005 Global Design Effort Central Team formed – 2nd ILCWS Snowmass (Aug 14 – 27) (special tutorials planned)
Organization (initial framework at “grass roots” stage)

IUPAP

ICFA
(J. Dorfan)

ILCSC
(M. Tigner)

1922
46 member countries -
Argentina ...... USA

1976
countries active
in HEP

2002
-outreach, define LC,
coordinate R/D,
facilitate tech choice,
identify ILC org. models

3 Regional Steering
Committees
(W. Namkung - Asia)
(B. Foster - Europe)
(J. Dorfan - US)

Phys & Det Sub-com
(D. Miller
H. Yamamoto
J. Brau)

Accel Sub-com
(G. Loew)

Params Sub-com
(2003)
(R. Heuer)

ITRP
(2004)
(B. Barish)

GDO TaskForce
(S. Ozaki)
Organization (current schematic - in effect now)
Organization (Central Team composition - evolving)

√ Director – Barry Barish  (appointed March 18)
√ Three Cost Engineers – T. Shidara, W. Bialowons, TBA
√ Three Regional Directors - F. Takasaki, B. Foster, G. Dugan
√ Other Technical Principals and their support
√ ........

Location will be “virtual” - rotating among the three regions, Asia, Europe, Americas.

Central Team Principals will remain stationed at home institutions and travel
Organization - example of possible work package arrangement

ILC Work Structure
Technical Direction

Oversight
- ILCSC

GDE
- GDE Central Team
  - Director
  - Deputy
  - Regional Team Directors
- ILC MAC
- ILC Resource Board

Work Package Level
- WP 1
  - WP Leader
  - WP1 Task1 (FNAL)
  - WP1 Task2 (ANL)
- WP 2
  - WP Leader
  - WP2 Task1 (SLAC)
  - WP2 Task2 (BNL)
- WP n
  - WP Leader
  - WPn Task1 (XYZ)
Challenges (For SRF community)

- Produce a “good” cryomodule in about 4 years
  - √ does the job as defined this year by GDE Central

- Have a “better” (as defined by GDE Central) design in the works to be available as needed

Challenges (For Whole community)

- Achieve agreement on GDE objectives
  - √ what’s needed to convince world agencies that we have technology and cost under control
- Achieve agreement on appropriate work sharing
  - √ focus resources in an effective way
- TDR and cost estimate ready on GDE Central time scale (∼ 4 yr)
- Segue from grass roots community governance to international agency based governance
Outlook

• Outlook is POSITIVE

Community Dimensions

✓ worldwide srf community has worked together for 25 years, solving common problems

✓ community selected a technology to pursue for the ILC

  ✓✓ impressed our patrons very favorably

✓ community now pursuing a unified design based on that selection under a leadership selected by a worldwide process

  ✓✓ impressed our patrons very favorably

✓ process in train to produce a proposal and cost estimate bearing the international community stamp

  THIS WILL HAPPEN
Government Dimensions

√ OECD Ministers endorse international collaboration in preparation for ILC

√√ “Ministers expressed their appreciation for the work of the OECD Global Science Forum Consultative Group on High-Energy Physics. They welcomed the report from the Group and commended the clarity and world-wide consensus they found amongst the high-energy physics community in developing the Roadmap for future large accelerator based facilities. ………. the Ministers note several important points that were articulated in the report: ………………… preparing for the development of a next-generation electron-positron collider,……………….”

√ Agencies formed FALC - Funding Agencies for the Linear Collider (so far United Kingdom, France, Italy, Germany, Japan, Korea, China, Canada, US…..)
√√ Discuss means for beginning agency governance of the project and financial support for the r/d preceding the TDR and cost estimate needed for commitment decisions

√ Formed also the FALC Resources group (third meeting last week) to interface between the GDE and the collective agencies

TOGETHER WITH OUR PATRONS WE’VE BUILT A SOLID FOUNDATION FOR PROCEEDING TO A REAL PROPOSAL

NOW IT’S UP TO US TO COME THROUGH, MEETING THE TECHNICAL AND SOCIAL CHALLENGES OF THIS PIONEERING ENTERPRISE, SHOWING ONCE MORE THAT WE CAN DO IT!