

Charge to the ECFA/LC Valencia meeting and News

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ilc
International linear collider

ECFA Study
Physics and Detectors
for a Linear Collider

ILC-Valencia 06

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International Linear Collider (ILC)
ILC-ECFA and GDE Joint Meeting
Valencia, 6-10 November 2006

IFIC
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For information; <http://ific.uv.es/~ilc/ECFA-GDE2006/>

Introduction

- WWS-GDE connections
- Evaluation of Detector R&D
- What comes after the DCR ?

Valencia : a common ECFA-GDE meeting

- As was recognized in Vienna, we need to reinforce the links between Machine and Detector/Physics experts
- The MDI panel which contains representatives from WWS and GDE was set for this purpose and has started the process (14 mrad decision)
- Many technical choices recently proposed by the GDE have direct impact on Physics

GDE-ECFA

- Valencia is an opportunity to have a public dialogue on these choices
- The plenary meeting on Wednesday evening is to discuss the implications for physics
- BDIR/MDI/WWS/GDE common meeting on Wednesday morning on the **push/pull** issues

PUSH/PULL

- First discussion on #IR #Detectors took place in Snowmass: the community is strongly in favour of 2 IR and two detectors
- The GDE (Barry) says:
- two IR are very expensive, please look at the push pull scenario with one IR and tell us if this is technically feasible
- you (the WWS) will be part of the study
- we take very seriously your priority for two detectors believe that the 1 IR scenario will increase the probability to get funding for two detectors
- Representatives of the concepts chosen through the WWS are involved in the TASK FORCE led by A. Seryi

PUSH PULL II

- ❑ Major technical challenge:
- ❑ Move 2 detectors 10000 T of meters into a position known to the mm level
- ❑ Technical risks?
- ❑ 'Sociological' ones : how to equally these two detectors
- ❑ We are just starting



Other issues

- ❑ Revisit the Parameters of ILC: Luminosity \mathcal{L} , Energy, Polarisation, Energy spread
 - ❑ e.g. what if we start ILC with reduced \mathcal{L}
 - ❑ Can we stand a large μ halo (occupancy)
 - ❑ Can we mount our detectors on surface in less than 5 years
- > Some will be addressed in R. Heuer and B. Barish plenary presentations on Wednesday evening
- ❑ Others can be asked by the audience during the Discussion

Reviews on Detector R&D

- ❑ An R&D Detector WWS panel was set under the responsibility of C. Damerell
- ❑ It had an impressive start in producing a global view of resources on R&D and these conclusions helped in triggering increased efforts in the US and Japan
- ❑ Next: DRDC like LHC or merge with the GDE R&D? No...
- ❑ Instead a global reviewing of the sub-detectors with a form of peer review (external members invited) and written reports during our next meetings

Next meetings in 2007

- Beijing ACFA/GDE Feb. 4-7 IHEP, Beijing
<http://bilcw07.ihep.ac.cn/>

Tracking

- DESY LCWS07/GDE May 31-June 4 2007

Calorimetry

- FNAL ALCPG/GDE October 2007

Vertexing

- ACFA (Asia) Beg. 2008

**Particle ID, muon tracking, solenoid,
beam diagnostics and DAQ**

R&D Panel reviewing (continued)

- ❑ The goal of this system is certainly not to send negative messages but to make sure that there is a consistent effort of our R&D which is a guarantee for our credibility
- ❑ Everything effort should be done to advise and protect emerging groups
- ❑ GDE supports this initiative while the panel remains under the WWS supervision
- ❑ Chris will present the project to FALC for support of the funding agencies

What comes after the DCR ?

- ❑ DCR report due to the end of this year (see J. Jaros report)
- ❑ Not the end of this effort specially for what concerns the evaluation of performances using representative physics channels: Higgs, top, precision measurements
- ❑ Notoriously insufficient at the moment but we hope that the software tools and the computing resources will make it possible to start a new program of PA (numerous PhD?).
- ❑ Plenary presentations on Thursday to stimulate this effort

Then what?

- ❑ We need to be in phase with the GDE roadmap for the TDR and the construction plans
- ❑ Machine TDR ~end of 2009 to be ready for a decision on ILC in 2010
- ❑ (provided the RDR cost is judged acceptable)
- ❑ Need to form 2 Detector collaborations ~2008

The LHC scenario

- 1992 Collaborations CMS ATLAS have started
- 1994 LHC approved
- 1997 LHC construction started
- ATLAS assembled in the pit
- CMS, comparable to ILC concepts, assembled on the surface

How to get to collaborations?

- Discussion on this topic going on with ILCSC

Possible scenario:

- CDR documents issued by the groups forming the concepts
- A body needs (ITRP-like?) to be formed for a selection and, eventually for a procedure of merging

Cautions

- ❑ Avoid loosing forces in this process
 - ❑ Avoid creating 'region oriented' detectors
- > Groups allowed/encouraged to participate to more than one concept

An unrealistic scenario ?

- US plans are assuming this type of roadmap
- **P5 Report: The Particle Physics Roadmap
October 2006**
- <http://www.science.doe.gov/hep/P5RoadmapfinalOctober2006.pdf>
- 'The ILC is the highest priority future project in the recent EPP2010 report from the National Research Council. We allocate \$500 million for the relevant R&D activities over a five-year period. The goal is to produce a technical design on an international basis and once initial LHC physics results are known to initiate the next step toward realization of this accelerator'

P5 Roadmap - 2006, US Program



CONCLUSIONS

- ❑ Valencia is a crucial meeting for the Detector community
- ❑ Physics analysis needs to be reinforced using the new software tools
- ❑ 2007 is a decisive year for future orientations of ILC
- ❑ This is an ongoing process for which we need your guidance

9th ACFA ILC Physics and Detector Workshop & ILC GDE Meeting

Feb. 4-7, 2007, IHEP, Beijing

<http://bilew07.ihep.ac.cn/>



Linear Collider? - Walkway of Temple of Heaven

EUROPE



- In Europe resources and priority are for LHC while, as noted by ESFRI, a strategy group created by CERN council claims that:
- 'It is **fundamental** to complement the results of the LHC with measurements at a linear collider. In the energy range of 0.5 to 1 TeV, the ILC, based on SC technology, will provide a unique scientific opportunity at the precision frontier'
- It also notes that 'It is also vital to strengthen the advanced accelerator R&D programme' (CLIC and neutrinos)