

ILC Detector R&D Panel

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- ☐ Panel composition and website
- ☐ Panel charge
- ☐ Input from detector groups (Dan Peterson)
- ☐ Input from Concept Groups (Andy White, Ties Behnke, Yasuhiro Sugimoto)
- ☐ Input from MDI community (Mike Woods)
- ☐ Output for end of 2005 (revised at Snowmass)
- ☐ Longer term – initial discussions at Snowmass with GDE

Panel composition and website

❑ 9 members, 3 from each region:

- Jean-Claude Brient (Ecole Polytechnique, France)
- Chris Damerell (RAL, UK) chair
- Ray Frey (U Oregon, USA)
- HongJoo Kim (Kyonpook National U, Korea)
- Wolfgang Lohmann (DESY-Zeuthen, Germany)
- Dan Peterson (Cornell U, USA)
- Yasuhiro Sugimoto (KEK, Japan)
- Tohru Takeshita (Shinsu U, Japan)
- Harry Weerts (Michigan State U, USA)

❑ Our website:

<https://wiki.lepp.cornell.edu/www/bin/view/Projects/WebHome>

Charge for WWS LC Detector R&D Panel 1/13/05

1. **Create and maintain a register of ongoing R&D programs** relevant for LC experiments, which should include R&D goals and schedules, names of participating institutions and their responsibilities, relevant publications, **level of support**, and web-links to current work. The R&D programs should include not only those required for the proposed detector concepts, but also those needed for measurements of luminosity, energy, and polarization (LEP) and those associated with the masking system, possible beam EMI, and other areas which may overlap with MDI. The registration of such MDI projects should be performed jointly with the MDI panel. Maintain a central web repository for this information, and update it regularly.

2. **Survey the R&D relevant for LC experiments.** This survey should review the R&D needs of all candidate detector concepts, LEP measurements, and relevant MDI issues as discussed above. **It should strive to identify the critical R&D items which affect the viability of each concept and uncover any needed R&D which is not being pursued.** In addition, it should encompass the existing R&D efforts, assess the relevance of these efforts to the various detector concepts and LEP or MDI needs, and flag areas needing more attention. Document this survey before August, 2005.

3. Critically review the Status of R&D Relevant for LC experiments. An important input for this review will be the **Spring 2006 Detector Outlines**, which will be requested from each of the current design studies by the World Wide Study Organizing Committee. **Each outline will include an introduction to the detector concept, a description of the detector, its expected performance, subsystem technology selections or options, status of ongoing studies, and a list of R&D needed.** Additional input will come from reassessing the ongoing R&D efforts with respect to relevance and importance, current level of effort, scheduled project completion times, duplication of effort, and additional resources required. Document this review by Summer, 2006.

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4. Register the regional review processes for LC detector R&D. In consultation with the ILCSC and the GDE, facilitate review for R&D proposals which are not easily incorporated into these existing review structures.
5. Continue these activities, and whatever further activities are judged important to prepare needed R&D for LC detectors, until a global lab assumes these responsibilities

Input from detector groups

- ☐ Dan Peterson and colleagues at Cornell U have set up, maintained and continue tuning a very good website for the R&D reports
- ☐ Due to understandable sensitivities, funding information is restricted to panel members
- ☐ Since LCWS2005, our Panel has worked via e-mail, phone calls and personal contacts, to establish one contact person per collaboration (or per group, if strongly preferred by the groups), and to help that person fill in the register
- ☐ Response rate has been slow, presumably because we have 'no carrots and no sticks'
- ☐ One or both may be on the way ...

Input from Concept Groups

- ❑ Groups were requested to deliver reports describing their R&D activities and future needs, in order to turn their studies into proposals based on established detector technologies
- ❑ The SiD group has taken this seriously, and we have a detailed document including a spreadsheet covering all their detector subsystems. Thanks to Andy White for this
- ❑ We have outlines, but are awaiting the detailed reports (specially the financial estimates) from the other concept groups
- ❑ There is obviously a large overlap between these routes for gathering information. For example, It may be that the LDC and GLD tracker R&D will be covered by the funding information from the world-wide TPC detector collaboration, when we receive it. **Ron??**

Interpretation

- ❑ We are still in the information-gathering phase
- ❑ Careful interpretation will be needed. For example, the SiD specify their vertex R&D needs for development of the small/large pixel hybrid of the Yale/Oregon/SLAC group
- ❑ If the other Concept Groups do something similar, we will need to be careful not to forget the other ~9 technologies under development
- ❑ Presumably, no concept is actually wedded to any particular vertex detector technology, though each may have a 'parental' role regarding one of them
- ❑ We do need to hear from people who represent missing R&D activities. PID could be important, given the spectacular progress being made regarding compact visible-light photodetectors (APDs in or near Geiger mode).
- ❑ Given the possibilities for PID to strengthen the sign selection of b- and c-quark charge as established in SLD, this seems to be a vacant area that urgently needs to be studied (my personal opinion)

Output for end 2005

- ❑ Somewhat revised goals have been agreed at Snowmass
- ❑ We will write a document, based on YOUR input, indicating R&D areas that have a high and urgent need for additional funding
- ❑ This will be particularly timely, given the high level of optimism regarding a substantial increase in funding for ILC R&D (machine and detector) in the USA
- ❑ Other regions have been less starved of funds, but a document setting out priorities could also help there
- ❑ There are NO areas of current detector R&D for ILC that don't deserve ongoing support (*my opinion*) so people should not worry that that their current work will be cut, **unless our document is misinterpreted by unfriendly forces within funding systems. We will have to be careful**
- ❑ Please note that this report will discuss only priorities regarding topics, not individual proposals, so we won't yet be at the stage of Barry Barish's 'proposal driven' R&D support

Longer term plans – preliminary discussion with GDE

- ❑ Very preliminary discussions between R&D Panel members, WWS-OC directors and Barry Barish for GDE took place on Aug 18th
- ❑ All agreed on an eventual evolution (perhaps early in 2006) to a second phase, where our panel will be replaced by a 'DRDC-like' committee under the GDE
- ❑ This will undertake serious evaluation of proposals, with open session presentations, referees, progress reports, etc.
- ❑ It may have further responsibilities, eg allocation of test beam time via links between GDE and lab directors
- ❑ It will include links to funding agencies via FALC, etc
- ❑ Current composition of R&D Panel would not be appropriate – we are all ILC 'insiders' with many potential conflicts of interest
- ❑ **Lessons from DRDC at CERN.** We will seek input from Enzo Iarocci, ATLAS and CMS colleagues, and all of you to find the best way forward