

ILD LOI

ILD workshop, Zeuthen
14-Jan-08

Hitoshi Yamamoto

LOI Call (Sent out. Oct 5, 2007)

Dear Colleague,

The International Linear Collider Steering Committee (ILCSC) announces a call for Letters of Intent (LOIs) to produce reference designs for the two ILC detectors. These designs will be detailed in two Engineering Design Reports (EDRs) to be completed on the timeline of the machine EDR being prepared by the Global Design Effort. The guidelines for the LOIs are presented in the appended document and a public presentation of the WWS roadmap for detectors can be found in the LCWS07 web site. The LOIs should be sent to the ILCSC by October 1, 2008 and will be reviewed by an advisory body appointed with the approval of ILCSC. This body, together with a management team led by the Research Director Sakue Yamada who has been appointed by ILCSC, will start a process leading to the formation of two groups capable of preparing the two engineering designs and the EDR documents.

Sincerely Yours,

Shin-ichi Kurokawa

Chairman of the International Linear Collider Committee

<http://physics.uoregon.edu/~lc/wwstudy/lois/LOIguidelines.pdf>

Trouble in UK

- STFC (Science and Technology Facilities Council) Delivery Plan - 11 Dec 2008
 - 2008/9 - 2011/12
 - ‘Our highest priority will be to exploit the Large Hadron Collider (LHC)’
 - ‘We will cease investment in the international linear collider’
- UK participation in ILC (last year)
 - Accelerator 4M pound
 - Vertex (LCFI) 2M pound
 - Calorimeter (CALICE UK) 1M pound
 - All these to zero next year

Trouble in US

- Omnibus Bill Passed
 - **High Energy Physics**
 - 2007 allocated \$752M
 - 2008 President's request \$782M
 - 2008 Allocated \$694
- Appropriations Act, Division C
 - **ITER → 0**
 - **Fermilab NOvA → 0**
 - **'In the current constrained environment and without CD0 by the department',**
 - ILC → \$15M (was \$60M)
 - SCRF → \$5.4M (about 1/4)
 - Already spent! (No funding for the rest of this year)

Fermilab and SLAC

- Fermilab
 - Tevatron, NUMI will be kept
 - Fully support LHC
 - No further spending on ILC, NOvA.
 - 200 FTE layoff (~Apr, May 2008)
 - 2 days/month furlough for employees
- SLAC
 - LCLS will proceed
 - SSRL user operation 15% cut
 - PEP-II is to terminate beg. March 2008
 - No further spending on ILC
 - 125 FTE layoff

- ILC Newslines
 - **Barry Barish**
 - ‘The physics motivation for a future linear collider remains as strong as ever...It is our firm intention to keep moving forward’
 - ‘The timescale for completing the Engineering Design Report will need to be stretched out.’
 - ‘we intend to maintain an aggressive schedule for our highest priority R&D demonstrations’
- GDE meeting at DESY (Jan 13, 2008)
 - **To prioritize work strictly**
 - **To come up with revised plan**

Detectors

RD in ILC newsline

- **Preliminary draft:**
 - ‘affect the speed of progress to a certain extent’
 - ‘We are determined to move forward.’
 - ‘Steady preparations continues’

- Impact not as severe as accelerator
 - **Still a major problem**

- Detector EDR may be delayed?
 - **To synchronize with accelerator EDR**

- LOI deadline is up to RD
 - **To be approved by ILCSC**

IDAG

- IDAG membership is now approved by ILCSC
 - **Each member still has to accept**
- TILC08 (Sendai) is still their first face-to-face gathering
 - **To get acquainted with ILC detector issues**
 - **And to get ready to review the LOIs**

ILD

- Impact is significant but not critical
 - **UK and US participation will be affected**
 - We shall help them as much as possible in any ways.
 - We shall also help SiD.
 - Any ideas on how to help them?
 - **Keep the momentum going**
 - Stick to the plan as default
 - With needed adjustments
- **Proposal: We should stick to our plan as much as possible with minimal necessary adjustments**

Purposes of LOI (guideline)

- What LOI IS:
 - A basis on which **two groups** will be invited to further develop and detail their plan and eventually submit EDR
 - It should enable the readers to judge the **potential** of the detector concept
 - And to judge the **capacity and seriousness** of the group to carry out the work toward EDR
- What LOI is NOT:
 - It will not any **formal commitment** of the groups to the project or the detector
 - It will **not exclude any other groups** to produce EDRs in time for construction.

Contents of LOI (guideline)

- Overall philosophy
- Subdetectors and alternatives
 - **Technological state**
 - **R&Ds needed and milestones**
- Physics performance
 - **Based on agreed-upon benchmark modes**
 - **How the components will work in concert to address the ILC physics questions**

Contents of LOI (guideline)

- MDI
 - **Developed enough to allow preliminary assessment of civil engineering issues**
 - Experimental hall, support hall, power needs, water needs, etc.
- Group structure
 - **Management**
 - **wrt the RD's organization (Common tasks)**
- Cost
 - **preliminary**
- Resource needs and time profile
 - **Money and FTE**

DODs

- GLD DOD - 134p
 - **1. Description of the concept - 10p**
 - **2. Detector subsystems - 90p**
 - 2.1 Vertex- 8p
 - 2.2 Silicon tracker - 4p
 - 2.3 Main tracker - 10p
 - 2.4 calorimeter - 32p
 - 2.5 Muon - 5p
 - 2.6 Small angle - 2p
 - 2.7 Detector magnet and structure - 13p
 - 2.8 DAQ - 7p
 - 2.9 MDI - 8p
 - **3. Physics performances - 17p**
 - **References and acknowledgements - 6p**

DODs

- LDC DOD - 147p
 - 1 Introduction - 1p
 - 2 Physics motivation - 3p
 - 3 Overview of Detector - 5p
 - 4 Tracking System - 38p
 - 5 Calorimeter systems - 47p
 - 6 Magnet System - 12p
 - 7 Muon System - 6p
 - 8 Data Acquisition - 11p
 - 9 MDI - 1410 Detector Integration - 4p
 - 11 Detector Performance - 14p
 - 12 Summary and outlook - 1p
 - 13 references - 3p

ILD LOI

- Changes from DODs
 - **More physics studies and optimization**
 - **Group structure**
- <100 pages total (guideline)
 - **Can have separate documents to be submitted together**
- Subdetectors
 - **Narrowed down enough to be a ‘single proposal’**
 - **VTX, TPC, Silicon, CALs, contacts + MDI**

Subdetector Contacts

- The subdetector contact persons should lead the effort to **define and refine the subdetectors for the LOI**. Specifically, the contact persons should act as the **liaison to R&D groups and individuals** that are doing relevant work, communicate with the other ILD working groups and other subdetector contact persons when necessary, and **should organize the relevant section of the LOI**. They should ensure that the R&D collaborations are aware of the needs of ILD and work together with them to fulfill these needs.
- Preliminary contacts defined who will select final contacts.

ILD LOI

- Chapters (preliminary suggestion)
 - **Overview - ~10 pages**
 - Overall philosophy and a brief description of ILD
 - **Physics performance - ~25 pages**
 - Simulation studies on the agreed-upon bench mark modes and extended modes if any.
 - Assessments of impacts on detector design
 - **Subdetectors - ~40 pages**
 - Incl. IR beampipe, FCAL, BCAL etc. (so-called 'MDI' items)
 - Requirements, technology choice and options
 - State of R&Ds, missing R&Ds, time lines

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- **Detector Integration - ~5 pages**
 - civil engineering issues
 - Detector solenoid, Structures, push-pull, etc.
- **DAQ and computing - ~5 pages**
- **Cost and resource needs - ~5 pages**
- **Group structure - ~3 pages**

In general, subdetectors sections will have to be more focused than DODs.

ILD LOI Editors (very preliminary)

- Overview, Cost&resources, Group structure
 - **JSB**
- Physics performance
 - **Optimization WG, JSB**
- Integration
 - **MDI WG**
- Subdetectors
 - **Vertex - VTX contacts**
 - **Tracking - TPC contacts, Silicon contacts**
 - **CAL (ECAL,HCAL) - Cal contacts**
 - **MDI - MDI WG**
 - **FCALs? (CAL or MDI?)**
 - **DAQ ?**
 - **Muon?**