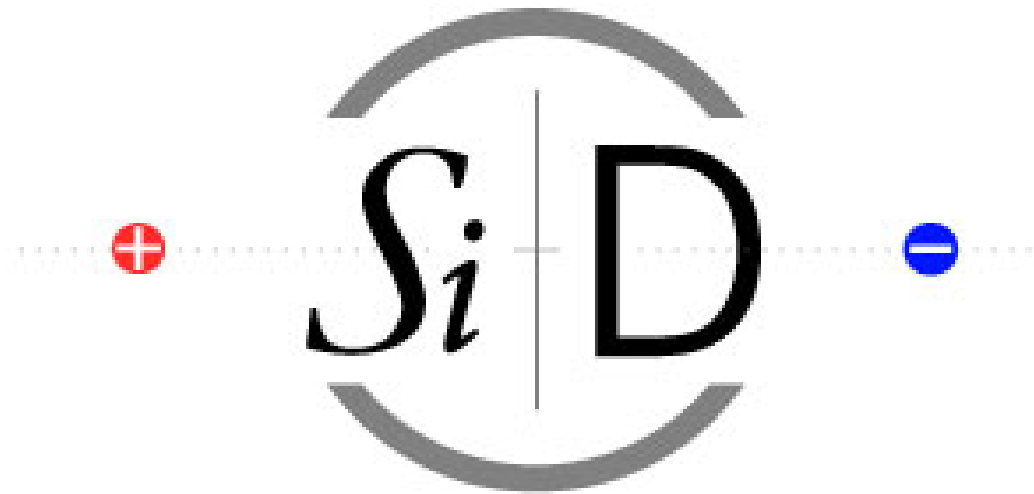


# The SiD LOI

## *Proposed Milestones and Schedules*



SiD Collaboration Phone Meeting  
September 6, 2007

John Jaros

# The Detector Roadmap

## ...as proposed by WWS at LCWS07

- A call for LOIs by ILCSC this summer, due summer 2008
- These LOIs will provide a description of the proposed detector and its performance, and will note the intent of those planning to collaborate on developing the EDR.
- LOIs will be reviewed by the IDAG, an International Detector Advisory Group of experts chosen by ILCSC.
- IDAG will facilitate the definition of two, complementary and contrasting detector designs, and report the result to ILCSC.
- The result of this process should be two proto-collaborations operating by the beginning of 2009 to produce EDR documents by end 2010.

## ...as planned by the ILCSC at LCWS07

- Issue Call for Detector LOIs summer 2007.
- Search for and appoint a Research Director, to oversee the experimental program for the ILC, coordinate reviews of the LOIs, facilitate the selection of two, complementary detector designs, help generate support for the two detector EDRs, and monitor EDR development.

# Roadmap Implications

**Calling for LOIs signals a Phase Change for the Detector Concepts.**  
Detector “Design Studies” are becoming “Detector Collaborations.”

**Calling for LOIs also sends signals to the ILC Detector R&D Community.** Now’s the time to align with a detector concept, participate in the optimization process, and contribute to the LOIs.

**Four goes to Two.**

The four ILC detector concepts, plus any that emerge within the next year, must eventually contract to two, suitable for full engineering design.

Spontaneous Coalescence (e.g., LDC and GLD)

Induced Coalescence?

Shotgun Marriage?

## Roadmap Update

ILCSC met again at LP07 in Daegu:

- Nominated a Research Director. Official acceptance expected this month.
- Accepted Notion of LOI and IDAG. Details to be worked out with RD.
- Will run these developments past FALC

Expectation: RD will issue call for LOIs this month.  
Guess that LOIs will be due ~9/08

to express an interest to design and engineer  
a detector at the International Linear Collider

• Version 2.8.2007

- The purpose of this document is to define more precisely the letters of intent (LOI) for detectors at the ILC.
- **With the LOI a group expresses its interest to develop a design for a detector at the ILC. LOIs will form the basis on which two groups will be invited to further develop and detail its plans and eventually submit an engineering design report, EDR.**
- **The LOI should contain information on the proposed detector, its overall philosophy, its subdetectors, and how this will work to address the ILC physics questions.** The evaluation of the detector performance should be based on a list of agreed upon benchmarks, which will be the same for all LOIs. It should contain a discussion of integration issues with the machine. It should be developed enough to allow a first preliminary assessment of civil engineering issues like interaction hall, support halls etc. It should enable the reader to judge the potential of the detector concept and to identify the state of technological developments for the different components. Alternative technological options should be elaborated. Where needed, areas of further research and development should be identified, together with timelines and milestones. The group submitting the LOI should define its position and role in the ongoing international research and development for a detector at the ILC. The LOI should include a preliminary cost estimate. The overall length of the LOI should not exceed 100 pages.
- The LOI can, but need not, refer to other documents where more technical details are given. If so these documents should be submitted together with the LOI.
- **In addition to a concise technical description of the proposed detector the LOI should present the structure of the group which is proposing the detector. The resource needs and their evolution in time should be presented, along with a plan to mobilize these resources.** The LOI will not represent any formal commitment of the groups signing it to the project or the proposed detector. It should however enable the reader to judge the capacity and the seriousness of the groups to carry out the work until the EDR.

# SiD's Goals for LOI

- **Optimize the global parameters already. Prove the concept.**  
This has been our goal from the start; time to complete it.
- **Detail and Integrate the Subsystem Designs.**  
Specify all parameters, flesh out the designs, evaluate the costs, choose the subsystem technologies.
- **Benchmark SiD's Performance.**  
Simulate a Realistic Detector. Benchmark it's performance subsystem by subsystem. Benchmark its integrated physics performance.
- **Engage new collaborators.**  
Lots to do for the LOI. Need to strengthen SiD Collaboration. Help is needed and designs are in flux. A good time to join and a good time to contribute.

# Draft Milestones/Schedule

...working backwards

- 9/08 **Submit LOI**
- 8/08 **Finalize results; finalize edits; finalize authorlist**
- 7/08 **Complete LOI Draft.**  
Collaboration reviews and comments.
- 4/08 **GEANT4 Description Ready**  
Benchmarking & Performance Studies ready
- 3/08 **Detector Design Frozen**  
Subsystems fully specified; technologies (and alternates) chosen; conceptual engineering designs done.
- 1/08 **Freeze Global Parameters.**  
First pass detector design.
- 12/07 **First pass global parameters and calorimeter choices**
- 10/07 **Subsystem Plans in Place**  
How to accomplish the above

# Milestones/Schedule

## comments

- Top priority: Define SiD Global Parameters with PFA.
- Physics benchmarking and Subsystem performance studies must get started now, on present SiD MC, to be ready for the optimized detector MC next spring. SiD needs a working PFA.
- Real Challenges for each subsystem: fully specified, realistic detectors.



# Work(shop)ing toward LOI draft plan

- @ALCPG-Fermilab 10/22/07
- @ ILC/LHC-SLAC ~1/18/08
- SiD WS-Oxford/RAL ~3/20/08
- SiD WS-KEK?Tokyo? ~7/08

**We need opportunities to discuss and debate  
the design choices before us.**

# LOI Editors

International team has agreed to serve as editors for the SiD LOI:

Hiro Aihara  
Phil Burrows  
Mark Oreglia

Thank you! Put us to work!