

Research Director's Report

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Jim Brau



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SiD moving forward

This month's Research Director's Report was written by Jim Brau (University of Oregon) and Andy White (University of Texas at Arlington), who serve on the SiD Executive Committee and were co-organizers of the recent SiD workshop.

The SiD (Silicon Detector) Collaboration met in a [workshop at the University of Oregon](#) in Eugene from 15-17 November to review progress, discuss plans, and further organise its effort for the *Detailed Baseline Design* (DBD) report due at the end of 2012. The workshop also reviewed and discussed contributions to the CLIC *Conceptual Design Report* (CDR), which is now to be completed by August 2011. A significant effort from SiD has been directed to the CLIC CDR, which has been of real benefit to ILC SiD as well, and will strengthen the effort on the SiD DBD.

The central purpose and focus of the SiD workshop was to review plans for the *Detailed Baseline Design*, assess progress, and refine the path ahead. Each DBD speaker was asked to present a list of critical R&D that remains to be accomplished for the design, summarise resources required and obstacles to critical R&D completion, present a timeline, restate the baseline and options

and describe the status of conceptual engineering and simulation.



Participants in the Silicon Detector Collaboration Workshop met at the University of Oregon in Eugene last month to advance their work on the *Detailed Baseline Design*, to be published at the end 2012. They also discussed their contributions to the CLIC *Conceptual Design Report*, to be completed by August 2011.
Image: Jim Brau

The [workshop agenda](#) began with talks by Sakue Yamada, ILC Research Director, and Marc Ross, ILC Project Manager, contextualising the SiD effort within the broader issues of ILC experimental programme development and of the Global Design Effort's progress and planning toward the *Technical Design Report* (TDR), to be published at the end of 2012.

Yamada reminded participants of the [purpose and elements of the DBDs](#), but acknowledged that the scope would be limited because of resource shortages. He emphasised the importance of the ongoing detector R&D, simulation efforts and physics studies. The DBDs should serve as a *demonstration* of the progress made toward realising detector experiments and should contribute to the development of a plan for the post-2012 effort. He also reported on the new role of the International Detector Advisory Group (IDAG) and its functions over the next two years. The Research Directorate is preparing an interim report at the request of the International Linear Collider Steering Committee (ILCSC) by next spring and requests specific input from SiD, as well as from the ILD (International Large Detector) collaboration and the Common Task Groups, as has been discussed in the Physics and Experiments Board meetings over the last few months. He concluded by welcoming the [Comprehensive Project Design Guidance](#) initiative of the ILCSC and encouraged everyone to review it and send comments to the ILCSC.

Marc Ross updated the meeting on recent work of the Global Design Effort (GDE). He described the 2010 re-baselining of the machine design, including the outcomes of the [first Baseline Assessment Workshop](#) (BAW-1) at KEK last September, and preparation for [BAW-2 at SLAC](#) from 18-21 January. BAW-1 recommended maintaining the average accelerator gradient of the *Research Design Report* and proposed a change from the original double-tunnel design to a single-tunnel main linac configuration. The GDE director Barry Barish has accepted these recommendations. There was good participation by the detector community at BAW-1, and this is expected again at BAW-2, where the physics performance is more directly affected by the themes of reduced accelerator power operation and relocation of the positron source to the central complex.

The GDE has been preparing its *Interim Report*, which will be completed early in 2011. By the time of the [American Linear Collider Physics Group Workshop](#) in March (ALCPG11), a new baseline will have been established, R&D plans post-2012 will be developing, and the design of the one-teraelectronvolt energy upgrade will have begun.

Jim Brau, convener of the Physics and Detectors SB2009 Working Group, covered the evolution of the physics and detectors community's perspective on the new baseline design as expressed by the Working Group. He emphasised the significant progress that has been achieved in the design over the past year, as the concerns of the community over the original SB2009 design were understood and addressed.

A critical R&D element is the recent progress on detector development, which has been strong. One notable example is the first data presented by Lei Xia from the meter-cubed RPC hadron calorimeter being tested at Fermilab.

Andy White concluded the workshop by summarising the status and plans for the various inputs to the DBD. A new, detailed DBD outline will be presented to the IDAG at the ALCPG Workshop in Eugene. That outline will clarify the DBD's contents, and what is unlikely to be manageable with the current resource limitations.

In addition to reviewing DBD plans, the workshop served the secondary purpose of informing a broader SiD constituency of the SiD's CLIC effort. Lucie Linssen and Peter Speckmayer from CERN presented talks, and others also integrated CLIC topics, along with ILC work, into their presentations.

The workshop dinner was held in the atrium of Willamette Hall, the home of the University of Oregon Physics Department. Jim Brau, the local workshop organizer, and his staff of graduate students and administrators, received a warm round of applause at the conclusion of the workshop for their efforts in conducting a useful, informative, and interactive meeting.

-- Jim Brau and Andy White for SiD



Jim Brau hosted a dinner for workshop participants in the atrium of Willamette Hall, home of the physics department at the University of Oregon. Part of a Feynman diagram of deep inelastic scattering, embedded in the atrium floor, is visible in the photo. The circle at the bottom of the photo is the nucleon of the diagram. Image: Jim Brau