

19. Accelerator Systems WebEx Conference

12 June 2009, 13:00 GMT

Minutes (v1.0)

Attending: W. Bialowons, P. Garbincius, S. Guiducci, K. Kube, F. Lehner, T. Omori, E. Paterson, M. Palmer, N. Solyak, N. Toge, N. Walker

Apologies received from: A. Brachmann, A. Seryi, J. Clarke

All slides are available on the indico site

<http://ilcagenda.linearcollider.org/conferenceDisplay.py?confId=3636>

1. Opening (N. Walker)

N. Walker welcomed the attendees and opened the meeting by apologizing for shifting the meeting to a Friday. There were high level management meetings at CERN. The GDE EC met with the CLIC steering committee to discuss future collaboration plans. The EC met also with the CERN DG. At the end of 2010 there will be an ECFA Linear Collider Workshop at CERN.

2. Short status report by TAGLs

DRs (S. Guiducci, slides available):

There will be a webex meeting on DR issues scheduled for 22 June with the aim to update the DR R&D plan for the process of selecting the new baseline at the end of 2009. As highlighted by the AAP review at TILC 09, how the results from the e-cloud R&D will be applied to the DR design has to be better laid out. The objective is to have a preliminary plan at ALCPG09. Susanna reported from a meeting with the CFS group last Tuesday (09.06.09). The new lattice file for a 6.4km ring with injection and extraction in the same straight section was given to CFS contact Tom Lackowski. Updates on heat loads and layout and rough location of the heat loads are necessary. The design information for this lattice will be appropriately scaled to estimate the requirements for the proposed 3.2km ring, as part of the SB2009 studies.

CesrTA (M. Palmer):

CesrTA is in the last week of taking experimental data before the next shutdown. A lot of work has been done on the X-ray beam size monitor (XBSM). Good progress was reported by Mark in many areas. More details and updates will be given next week. A mini-workshop to refine plans for the CesrTA experimental program will be held at Cornell on 25 June. Mark commented that Cornell will help in preparing the power-supply layout and requirements for the ILC DR.

Positron Source (T. Omori):

There was no report by the TAG leader. Instead, T. Omori reported on preparations for the ILC/CLIC common positron source meeting next week (18.06.09)

RTML (N. Solyak, written report):

Major R&D studies were focused on design and performances of the single-stage bunch compressor. The accomplishments are:

1. Design, based on optimized PT2005 lattice is completed (BC1S).
2. Diagnostic section was moved from BC2 to the end of single-stage BC and slightly re-designed to lower energy.
3. Main linac has been extended down to ~5 GeV, using lattice for a regular Main Linac
4. Emittance preservation studies are completed for both baseline two-stage BC and single-stage BC. Nominal misalignments and RF coupler kick and wake were assumed. Emittance growth results are similar: ~5nm for BC1S and ~7nm for two stage BC = (BC1+BC2). In both cases DFS and bump optimization was used. Optimization of CM tilts (3 CM in BC1S and 3 CM in low-energy Main Linac) allows further reduction of emittance growth by factor of 2-3. Final results: 2.6nm for BC1S and 2nm for baseline 2-stage BC.
5. Beam extraction line after BC1S was re-designed to accommodate larger energy spread in BC1S vs. BC1 in baseline (3.6% instead of 2.5%). Few possible designs were analyzed.
6. We generate list of the components in single-stage design as a basis for incremental cost estimation.
7. Results were presented and discussed at ILC AD&I meeting, DESY May 28-29, 2009

After DESY AD&I meeting the following work was accomplished:

1. BC1S lattice was modified. Two major changes:
 - a. Type-3 cryomodules were replaced with cryomodule Type-4
 - b. 6-cell wiggler was replaced with modified 6-cell wiggler, used in BC1 stage. New wiggler is more advanced and provides more flexibility and tuning knobs. Lattice is being optimized and matched to diagnostic section.
2. New sets of stray magnetic field measurements are completed. We are studying on effect of magnetic shielding (μ -metal) to reduce stray field inside the vacuum tube. It was found that significant reduction can be achieved.

BDS (written notes by A. Seryi):

ATF2 Winter-Spring 09 runs concluded with good results on emittance measured in the extraction line -- 11pm has already been measured (design for ATF2 is 12pm). Tuning of ATF2 proceeded in highly systematic manner. Optics and

tuning tools are being used to verify and tune the optics. The horizontal beam size is measured by BSM working in laser wire mode and is in good agreement with the predicted value. The measurement of the vertical beam size by interferometer mode of the BSM hasn't yet been achieved and this is a priority for the Fall 09 run. The 8th ATF2 project meeting (June 4-8) reviewed the commissioning progress and identified where the efforts need to be focused and in particular where hardware and software upgrades will be needed. These include multi-OTR system, upgrade of extraction line BPM electronics, establishing of a laser transport line from LW laser to BSM (amongst others). These upgrade will allow:

- better reproducibility of emittance and extraction conditions;
- reliable and fast emittance measurement and corrections and optics verification, correction to the IP;
- interferometer mode of BSM.

MDI work at SLAC, on IR and a practical push-pull solution which combines the ILD and SiD detector approaches. Alain Herve (CERN) is currently visiting SLAC, and is expected to be joined by DESY and FNAL experts soon.

Simulations (K. Kubo):

A ILC/CLIC beam dynamics workshop is to be held at CERN 23-25.06.09. The attendance seems to be good with ~30 registered participants. See <http://indico.cern.ch/conferenceDisplay.py?confId=56133>.

3. Summary of DESY AD&I Meeting (N. Walker; slides available)

Nick gave a summary of the "Accelerator Design and Integration Meeting" (AD&I) which was held on May 28-29 at DESY in Hamburg. The agenda information and the talks are available at

<http://ilcagenda.linearcollider.org/conferenceDisplay.py?confId=3526>

The PMs have written a comprehensive [summary report](#) (ILC-EDMS ID #879845). The report contains a table of the straw-man baseline 2009 (SB2009) working assumptions and a list of action items for all areas.

Special CFS contact points for accelerator systems on CFS work have been re-established. To enhance the CFS-interactions a series of webex meetings for CFS requirements review are scheduled. In addition there will be a special face-to-face meeting for the central region integration at SLAC in the latter half of July (TBC).

Nick continued to talk about the AD&I goals at the upcoming ALCPG (29.09.-03.10.). The top-level details of SB2009 in terms of cost increment, parameters etc. and risk register have to be worked out. At the same time the writing of the proposal report (outline, content, writing assignments) has to begin. A second AD&I meeting is tentatively planned for end of November (TBC). In December 2009 the proposal report will go to the EC and then to the AAP, to be reviewed early January, 2010.

The next TAGL meeting is set on 8th July, 2009 at 13:00 GMT.