Accelerator Systems TAG Webex Meeting (7 Sept 2011)

Participants

Nick Walker (Chair), Ewan Paterson, Benno List, Sabine Riemann, Wilhelm Bialowons, Karou Yokoya, Akira Yamomoto, John Carwardine (scribe), Wei Gai, Tetsuo Shidara, Mark Palmer, Nikolay Solyak

Themes for the meeting

- Preparations for LCWS
- Baseline Process, October BTR
- TeV strawman parameters

Nick noted that the AD&I webex meeting next week (15 Sept) will cover many of these themes in more detail.

PM Report (Nick)

Timescale and milestone dates for producing the Technical Design report (AS)

- LCWS meeting in Granada (Sept '11).
- Baseline Technical Review at DESY (Oct '11) will focus on the central region.
- By the end off the BTR in October, there should be a complete baseline for all accelerator systems – no more discussions about what's in or not in the baseline.
- We will then have about eight months to complete the draft of the TDR Parts 1&2 before the Spring 2012 linear collider workshop DILC'12 in Degu, South Korea (dates still TBD).
- The final draft of the TDR along with updated cost estimates will be due mid 2012 (ahead of the assumed ILC/CLIC meeting next Autumn)

BTR for the Central Region (October at DESY)

- Review TDR baseline design decisions
- Formally resolve outstanding decisions
- Review related R&D status
- Review CFS requirements
- Review cost (status)
- Deliverables
    - We expect to have more or less final documents delivered at the BTR
    - Work program for the remainder of the TD phase
- Ideal generic scope for the baseline technical reviews:
    - Parameters
    - Lattice
    - Technical Systems
    - Key technologies (important) - specific key R&D, decisions needed for any technology down-selects
- Three operation modes need to be considered
    - Standard 500GeV op
    - 10Hz low energy (Ecm) operation

- TeV upgrade considerations

Outline agenda for the Central-Region BTR
- Mon: BDS/MDI
- Tue: Positron Source
- Wed: Electron source / RTML
- Thurs: Central Region Integration (CFS + close-out)

Participation from Physics and Det. Group is expected – Nick will be asking for key presentations

A proposed detailed agenda will be sent to TAGs in the next few days. Feedback will be required from TAGs very quickly on whether the agenda is realistic.

Ewan noted that although not part of the BTR per se, the Friday after the meeting is booked for a CFS meeting (not part of the BTR - just CFS). There will also be a cost management meeting on the Saturday (not an open meeting)

LCWS-2011
- Top-level goals for the workshop and parallel WG sessions were distributed in email from M. Ross on 2 Sept
- Primary GDE/ILC goals for the meeting are
  - Review the TDR outline and finalizing writing assignments
  - Finalize agendas for the BTRS (Central region, main linac, CFS)

Parameters for proposed TeV upgrade
- Strawman parameters were sent out on 30th August. Two proposed parameter sets were sent to the community with 5% and 10% beamstrahlung, as agreed with the Physics/Detector community.
- The parameter sets are based on an approximate AC power limit of 300MW and a Main Linac criteria of 45MV/m average accelerating gradient at Qo of 2e10
- Please study the parameter sets carefully and provide feedback. The Physics & Detector groups have been told to expect the parameters to change once the parameter sets have been assessed by the AS groups on what is believed can or can't be achieved
- A proposed outline for the white paper on TeV parameter sets will be available at LCWS, get document finished by end of 2011 (will also be part of TDR)

TAGL Reports

Electron Source (no report)

DR - Mark Palmer
- Will be sending a note shortly addressing interface issues including latest list of CFS parameters
- Nikolay's designer is working on a vertical transport section from two positron rings into a single RTML line. This is fairly critical path for discussion at Granada. Would like to arrange preliminary discussion before Granada
- Proposed agenda for the Granada DR parallel sessions

- First morning: central region integration
    - Tues am: blocked out for integration between DR and RTML
    - Tues pm: for CFS integration
    - Wed: ATF/ATF2 joint sessions
    - Thurs: split between set of physics talks and planning for TDP2 including outline ant timeline for TDR (and personnel assignments)

RTML (Solyak)

- Work has begun on new design for RTML central area.

BDS (no report)

Report on ILC positron source collaboration meeting (27 Aug) - Wei Gai

Agenda topics:

- Positron Source Parameter set (Yokoya)
- Collimation and Polarizations (Staufenbiel)
- Target development / shockwave calculations (Ushakov)
- Target and capture hardware development (Gronberg)
    - Currently believe that a max of 3.5 Tesla is possible - it is believed that the target pancakes would not survive higher fields. It was noted that the goal had originally been 4.5 Tesla
- Summary of Pre-accelerator development and simulations (Gai)
- Polarization / spin rotation (Riemann)
- Central Region Integration (Collomb)
- Keep-alive /auxiliary source requirements, simulations, and configurations (Kuriki)
    - Lot of time spent discussing intensity requirement. Yokoya noted that an intensity of 2% of ILC nominal is considered possible

Wei noted that requirements are needed for the the auxiliary source.

Nick said there had not been sufficient discussion so far about the auxiliary source and that this needed to happen before the October BTR at DESY. The criteria could be defined top-down or bottom-up based on proposed usage. It is not exactly clear how the aux source would be really used (there is still a wide range of opinions), and this makes it difficult to firm up the requirements. Nick will draft some top-down numbers as a starting point and then have people say what they think they could/couldn't do given those parameters.

- Alterative Source (Omori)
    - Conventional backup scheme (Takahashi)
    - Nb3Sn superconducting undulators for ILC (Bradshaw). It is now thought that a high-K undulator could be built if it were possible to get the Nb3Sn wire. The problem is that nobody currently makes such wire

Nick: it is interesting that they think they have a parameter set for an undulator that they think they can build. What is the pitch? Wei Gai said: 7-8mm. Nick noted there is currently a lot of interest in Europe in getting the Nb3Sn wire because of the LHC upgrade.

Nick said it is very important to get information to CFS about the auxiliary source prior to the October BTR meeting.

Wei noted that Gronberg had indicated in his talk that the target might have to be replaced about every 6 months (as opposed to the once per year that had been assumed for the RDR). Nick asked whether this was based on the full parameter set or reduced parameter set? (Don't know)

Nick reported that he was discussing with F-Division at DESY about the possibility of having someone to do lattice work for the positron source, perhaps to design the spin-rotator section lattice. This is a topic for discussion during LCWS.

Next meeting: 5 October