10th Meeting of the ATF TB/SGC

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Concluding Remarks

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Highlights

- Many thanks to all the speakers for a set of very clear and interesting presentations.
- The range of work and continued progress in many areas is impressive.
- 98% reliability over the running period January – June 2010 is an important achievement. The hardware upgrades (LINAC klystron modulators, EXT corrector PS) are addressing some well known reliability and performance issues.

Highlights

- The work on a range of advanced instrumentation for ultra-low emittance beam measurement and control maintains the ATF/ATF2 program in a world-leading position in this area.
- Steady progress is being made towards the goal of 37 nm vertical beam size at the ATF2 IP.
- Achievement of < 12 pm vertical emittance in the beam after extraction from DR is a significant step forward; but it is recognised that efforts with many hardware and software components have made important contributions to the overall progress at ATF2.

Highlights

- There is continued good progress with R&D for a Compton-based positron source.
- The plan to test a fibre laser for the EXT laser wire seems to have a good motivation, with a number of potential advantages over the current Nd:YAG laser, if the pulse energy is sufficient to provide the signal/noise ratio required for the laser wire. The experience with this system may provide useful for wider accelerator applications.

Recommendations

- Multibunch instability has been identified as an issue (affecting many experiments), and the planned efforts to identify and rectify the cause seem to be appropriate.
- Good results have been achieved with the DR BPM upgrade. We understand that in narrowband mode, the new electronics are already integrated into the control system. Turn-by-turn data provides a potentially valuable diagnostic tool for optics measurement and correction, and we would urge that this mode also be made routinely available through standard control system applications.

Recommendations

- The ATF2 collaboration is doing an impressive job in addressing many detailed technical challenges. There is a strategy for achieving the project goals. The TB understands that future dedicated tuning runs are planned, with specific goals outlined, but the details are still under discussion. Information should be communicated to ATF/ATF2 users when available. Users can benefit from good beam quality and stability that can be expected to follow dedicated tuning runs.
- While good progress has been made with the fast extraction kicker, work is still needed to demonstrate stable extraction of long bunch trains, and long-term stability. This is important work that should be supported.

Proposal: X-Ray Monitor at ATF2 Extraction Line

- Results of beam size measurements using a coded aperture at CesrTA have been impressive; but ATF2 provides the opportunity for demonstrating even better performance.
- Proposal has been well prepared: resources are available, and practical issues have been addressed.
- The research fits well with the ATF2 program, in terms of the program goals and timescale.
- Much of the work, in particular in the early stages, can be done parasitically (assuming beam in the extraction line), though some dedicated beam time (with small spot size at the source point) will be required when testing the performance of the monitor.
- The TB recommends that the proposal be supported.

Proposal: SC Quad for ATF2 Final Doublet

- The TB recognises that the decision to defer development of a SC quadrupole for ATF2 was a difficult one, based on the need to prioritise limited resources within the framework of linear collider R&D.
- The decision has clearly been reached after much discussion, with methodical and detailed consideration of all relevant issues.
- We understand that discussion on a SC quadrupole for ATF2 may be resumed on the timescale of six months to a year.