

8th Meeting of the ATF TB/SGC

11 June 2009

Hardware Status

Fast Kicker

- FID pulsers have had a reliability problem: this appears to have been solved by moving the pulsers to a low-radiation region.
- There are difficulties with extraction, apparently related to the alignment of the auxiliary septum. However, extraction tests are still in the very early stages.
- This is a challenging project; difficulties are to be expected, and are being addressed effectively.

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- Few shifts since January; focused on commissioning new bpms and kickers, which are now working.
- Future plans include commissioning of new integrated electronics.

Hardware Status

Cavity bpms

- Problems with trigger (random jumps in phase) have been fixed.
- Work continues on calibration.

Laser wire

- It is hoped to achieve the resolution goal of < 1 micron after improvements over the summer shutdown (including correction of astigmatism).
- Work is still needed to automate the scanning process. It is hoped that the scan time will be only a few minutes.

Emittance Tuning

Recent improvements have been achieved.

- Magnets have been realigned; there should be study to understand the value.
- Why is the model not predicting the behaviour of the machine accurately? (Why do we need an empirical approach?)

Is the x-ray sr monitor resolution limited? Laser wire seems to indicate emittance < 5 pm... which is very encouraging.

More work should be done to understand the impact of the various tuning techniques being employed.

ATF2 Commissioning

Tuning appears to be making very good progress.

- Approach is highly systematic.
- Vertical emittance of 11 pm has already been measured.
- Vertical beam size of 2.9 microns (limited by wire size) at this stage is very encouraging.
- Horizontal beam size is in excellent agreement with the model/prediction.

ATF2 Commissioning: Schedule/Plans

The TB feels it would be helpful for the project to draw up a list of tasks, grouped by priority, for achieving the goals.

Each task should identify:

- Person responsible
- Resources required
- Resources available
- Target date for completion

Such a list would help to identify where resources are lacking, and be useful for targeting new resources where available.

We understand that discussions towards developing a prioritised list of tasks, with responsibilities etc. have taken place during the ATF2 project meeting earlier today.

Proposal: Multi OTR System in ATF2

This system will be very helpful for tuning, providing single-shot measurements with resolution ~ 2 micron (complementary to the wire scanners).

Installation can take place in a timely fashion (maybe by end 2009) with minimal impact on other activities.

There will be a need for dedicated shifts for commissioning/tuning. This will need to be addressed in the schedule.

The TB feels that the proposal should be supported.

Proposal: OTR monitor with super resolution

Goal is to demonstrate an OTR monitor with resolution < 1 micron.

Space is available for installation.

This is an interesting R&D project, which we would like to support. However, it does not appear to be a top priority for ATF2, so the resources (beam time etc.) required need careful consideration and management.

Opportunities for collaboration with other OTR studies at ATF/ATF2 should be explored.

Proposal: SR Monitor at EXT

After installation, studies will be mostly parasitic.

Halo studies will be of interest.

The TB feels that the proposal could be supported; however, we would like there to be a more careful study of what can be learned from the measurements, e.g. can halo measurements be made on a single bunch? If not, what can we learn from integrating over many bunches?

Proposal: Cavity Beam Tilt Monitor

Technical design work which suggests performance capable of measuring tilts ~ 35 nrad.

Interesting to consider how such a device may complement bpms for beam tuning (in ATF2 and other machines, including ILC).

Seems to fit well into overall ATF/ATF2 program and objectives.

Modest resource requirements.

The TB feels that the proposal should be supported.

Proposal: Hydrostatic Levelling System

A hydrostatic levelling system would be useful for developing a ground motion model, and for understanding the ground motion between different parts of ATF.

Installation would not necessarily be straightforward, but the system does provide the possibility of working round obstacles.

It would be a strong advantage if resources can be provided without detracting from resources required for other aspects of ATF/ATF2.

The proponents should discuss with ATF/ATF2 project coordinators, to determine how and where such a system may best be used to the benefit of the project; and to address resource requirements, other impacts etc.