

# Minutes of the TITAN Meeting

Held on the 9th of February, 2009

**Present:** Maxime Brodeur, Thomas Brunner, Paul Delheij, Jens Dilling, Stephan Eettenauer, Melvin Good, Alain Lapierre, Matthew Pearson, and Ryan Ringle

## **EBIT**

Alain continued to optimize the beam to get the smallest beam spot on the MCP's phosphor screen, and it seems that there are several 'optimal' settings, each of which with different combinations of steerer-bender settings.

Using simulation values do not work experimentally, and it will be tried to simulate the beam parameters with the experimental parameters.

First inspections on the electrodes did not give a hint of bad wiring, but it might be necessary to vent and look in the inside, too.

### Action Items:

- x) scan electrode's settings to find optimal configuration
- x) maybe vent beamline to check wiring

*Lifetime:* Thomas started to perform the lifetime measurement of the EBIT's storage time. The ions were injected into the EBIT, stored for a certain time, and then released and detected on an MCP. Typically, there are 4 ions stored in the EBIT for each shot, and for each storage time 100 shots were taken. It was shown that the source remains rather stable over the measurement period.

Preliminary, results show that the number of counts registered on the MCP is nearly the same (within uncertainty) for most investigated storage times, but for 20 min a large drop was observed. By using the same measurement cycle without actually loading the EBIT, Thomas could also confirm that dark counts on the MCP are negligible.

### Action Items:

- x) take more data to make a more comprehensive study and determine the half-life
- x) maybe: use position sensitive MCP to see the increase of the beam size with increasing storage time.

## **Communication between LabView and EPICS**

Thomas fixed the problems, and the communication between LabView and EPICS works now. This makes it possible to easily scan through several parameters.

## **MPET**

*dipole cleaning:* It seems that we are not able to completely deplete, independently which RF time or peak-to-peak voltage is used. There always are a few counts.

For  $T_{rf}=10$  ms we managed to reduce the width of the depletion region to about 40 Hz. Generally, the smaller ppV the narrower is the depletion region (down the situation when we do not deplete any more). In most configurations with maximal depletion, there are sidebands in the mean TOF vs ScanValue spectrum. So, it is not only important that the

ions of interest are not kicked out of the trap (i.e. their  $f_+$  is not inside the depletion region), but also that the observed sidebands of the dipole RF won't affect the quadrupole RF resonance.

*field corrections*: Maxime worked on the electric field corrections and showed results of theoretical calculations for the tube and guard voltages. The optimal settings depend on the range one assumes the ions are migrating in the trap.

To minimize the ions' motion in z-direction, it is planned to scan through the pulse drift tube and the capture time (without any RF applied) and measure TOF to yield optimal trapping.

#### Action items

scan through PLT & capture time to find optimal trapping settings

#### **CPET**

x) A discussion about a bridge as a potential way to extend the platform will be hold today.

x) The main issue remains the space restraints on the platform and Mel continues his work to make the design smaller. In particular, his new design for feed-throughs and connectors was discussed as well as shielding of cables to avoid an impact on the ion motion.

x) Gerald will be at TRIUMF on Feb 23<sup>rd</sup>.

x) It is planned to review the final design before it is sent to the machine shop.

x) The magnet will be shipped to TRIUMF within the next days. It will be shipped in cold state and needs to be refilled within days after the arrival. The first setup at TRIUMF should already include the final vacuum tube (high priority!!!).