TITAN General Meeting

Date: Friday Aug 31, 2007 Time: 10:00 – 11:30
Chairperson: Jens Dilling
Minutes recorded by: Thomas

Present: Jens Dilling, Mel Good, Vladimir Ryskov, Mathew Smith, Alexei Bylinskii, Ryan Ringle, Maxime Brodeur , Alain Lapierre, Thomas Brunner, Christian Champagne, Cecilia Leung, David Lunney

Jens gave a short summary on the Li mass measurements. Following, there were some points discussed that need to be done before the upcoming run in December.

RFQ:

Issues:

- Limitation in repetition rate (~10-15Hz). The rate can't get higher due to switching limitations at the drift tube
- Oscillating power supply of drift tube
- There is need to install a buffering for the switch
- Looking for a 60kV push-pull Behlke switch

Mathew and Ryan presented a list of tasks and updates to be done:

Measurements:
Longitudinal emittance

- Reverse extraction w/ laser; disadvantage are different parameters for forward and backward extraction
- Install another MCP after Na vapor cell
- Control of ISAC optics relevant to reverse extraction
- Single ion counting (Determination of Longitudinal emittance with 1eV resolution)
- Need proper MCP control (implementation in EPICS)
- Install new switching system
- Beam gate sharing
- Iris box (need very soon)

Transverse emittance

- Install full emittance rig (use with single ion counting) and put it at the place of a single lens (toploaded setup with lens and emittance measurement)

New Detectors:

- MCP on top of RFQ instead of FC

General Improvements (see issues above):

- Increase rep rate (at least 50 Hz)
- PB5 (larger push/pull, buffer capacitors, larger PS)

- Sort out PS issues in RFQ cage

Priorities:

- Increase repetition rate (takes about one week)
- Push ops to install a detector in front of the RFQ

Mathew and Ryan will need about 1.5 months prior to the beam time for systematic studies and improvement. A list of tasks will be sent to Jens to set up and coordinate a timeline.

MPET:

Issues:

- Decrease excitation time to 65ms
- ^{11}B (OLIS) before next online run
- Trap needs some improvement for ^{11}Li

Improvements:

- DAQ
- RF control (it is user unfriendly to walk to the platform and change the values by hand)
- Unreliable electrode control – 1/10th of the cycles is screwed up
- Improve MIDAS for online data processing
- Swappable detector system for the MPET to change the MCP without breaking the vacuum. This needs major modifications
- Beam gate and timing need improvement. An additional trigger output is required

To do:

- Ryan will ask Stefan Schwarz for permission to change the EVA code for offline analysis (~ 3 months of part time)
- Analyze taken data
- Simulate extraction settings and put them in EVA
- Perform systematic studies and measurements to back up data and understand the system → publish results of online run
- Idea of a TITAN off line source, but at the moment OLIS is sufficient
- Magnetic field mapping with Na
- Use of fast preamps for single ion counting at the MCP. Leony has 15ns rise time preamps but Vladimir found some with less than 1ns on the web
- Vladimir will ask the electronics group to build a voltage divider with current drop to protect the MCP from damage
- Find our if the MCP plates are damaged
- Short in the steerer: Vladimir wants to keep the current status of the Lorentz steerer because it can still be used in one plane
- Implement procedure to find resonances, run the system, a.s.o.

Vladimir and Maxime will need about 1.5 months prior to the beam time for systematic studies and improvement. A list of tasks will be sent to Jens to set up and coordinate a timeline for work on MPET and RFQ. This time line will be set up on Tuesday, Sept. 4th.

Summer students:

Jens officially said goodbye to Cecilia and Alexei and thanked them for their work. Both of them gave a short overview about their projects.
Cecilia brought the pieces to the shop mid of July. All parts are done and assembled except the wiring. She wrote a report and will mail it to Jens and Alain.
Alexei also wrote a report that he will mail to Jens. He suggested some issues that need to be done before the next run:

- Add attenuators at the input
- Switching in the module creates overshoots and this might lead to problems → amplitude modulation
- Chris Owen is working on diagnostics and will continue working on it but needs a request to continue

EBIT:

Alain:

- EBIT was turned on with electron beam of 15mA two weeks ago
- When biasing the drift tubes some sparks occurred and this might be the reason why the magnet quenched. Relocation of the magnet power supply might help.
- Plan to open the EBIT step by step, try to find the problem and fix it.

Chris:

- Looking for retarding field analyzers and looking into the design
- Did some SimIon simulations and is still on it. The expected longitudinal spread of HCI is 7-20eVq
- Will finish the simulations during the next two weeks and present a design review as well as a time line in two weeks.
- Specs: longitudinal energy spread of 7eVq shall be resolved