

Minutes of the TITAN Meeting

Held on the 4th of June, 2009

Present: Thomas Brunner, Jens Dilling, Stephan Ettenauer, Scott Foubister, Aaron Gallant, and A. Lapierre

EBIT

Before RNB Max and Alain were trying to perform measurements on protons and He-like O produced in the EBIT. Before the conference the magnet was shut down and is not turn on again.

Thomas is working on storage time measurements on singly charged ions, but the MCS has problems with the temperature in the experimental hall.

Ge detectors

Thomas and Aaron are testing the Ge-detectors to improve the energy resolution. Varying the M parameter seems to be not very sensitive to the resolution except when it is off by a lot. In total the energy resolution for the tig10 is about a factor of 2 worse then for dspec. A new crate (VSI) was set up for the tig10 card.

Stephan spoke with people from the GRETINA collaboration about some of our problems:

x) The overshoot which we see on all our detectors' pulse shape is due to an incorrectly set capacitance. In most detectors the capacitance can be tuned to achieve shorter rise times, but for too short rise times this overshoot can appear.

x) The get the decay constant of the signal right, they are adding lots of events (well above noise) and simply fit the decay with an exponential.

x) For transistor reset preamplifiers digitizing might lead to incorrect energy results due to a non-linearity in the ADCs. This was realized using signals which linearly in time passed over voltages. Some channels had a larger number of hits then others.

For feedback resistor detectors this effect is averaged out, because the decay of the signal is passing over many different ADC channels.

CPET

Mel and Scott have cleaned the titanium tube. Ion gauges are attached on both sides and tube is pumped down now. Paul took pictures. Initial problems with the gauges (the one closer to the turbo pump showed a higher pressure) are now fixed. The pressure varies between 10^{-10} Torr (cold in ISAC hall) to 10^{-9} Torr (warm in ISAC hall). It is considered to add some sort of temperature stabilization.

Baking:

x) Jens will send the baking pressure cycles for MPET to Scott.

x) Setup for baking is in place.

x) The question arose how we will know when titanium is activated. One would see it with a residual gas analyzer, but for the moment one has to rely only on the pressure. Maybe also speak with Igor Sekachev from the vacuum group.

x) Scott and Stephan will investigate how well the vacuum needs to be for highly charged ions. Alain mentioned that he measured losses of about 1/5 for He-like O in 100 ms,

which is a lifetime of 450 ms. The pressure at the ion gauge was 10^{-9} torr, which means a pressure of about $3 \cdot 10^{-9}$ Torr in the trap.

Upcoming Beamtimes

x) discretionary beam time

Yield measurements will not start before June 15th, which means that we would only have the weekend Friday 19th to Monday 22nd. We would ask for Kr and Br and perform measurements with singly charged ions. Since not many people will be here for these measurements and since it is unclear what will come out of the target, this beam time has low priority.

x) ^{126}Cs test run for EC-BR measurements: July 16- 20, high priority

x) Beamtime September 11-15: high priority

We will measure K-isotopes as highly charged ions. The focus is on $^{38\text{m}}\text{K}$, but we will continue to measure neutron rich K-isotopes. When yields become too low we would switch to singly charged ions.

Before the measurement charge breeding should be set up with stable K from the off-line ion source. In case there is not enough K coming from the current source, we could switch to the Cs source. This should only be done after the discretionary beam time.

Miscellaneous

Gerald will come next week.

Vanessa will start her PhD August 3rd.

Max via e-mail:

- * The high stability PS for the new MPET trapping scheme are arrived.
- * Plan to talk with Daryl next week about the switches for the trapping.
- * The front panels for the RFQ reverse and forward extraction are installed.
- * I've gave the current RFQ to MPET tune as well as detailed drawings of the Einzel lenses to Rick Baartman for his simulations.
- * The Li6 paper is coming along. Systematics studies gave the following uncertainties:
 - + Error on the interpolation of the B field: 0.15 ppb
 - + Error due to ion-ion interaction (keeping two detected ions): 0.14 ppb
 - + Relativistic mass increase and statistical: 1.1 ppb
 - + Mass dependent shift due to miscompensation: ~ 0.5 ppb(did not cross-check this one yet).

Yesterday I've also check out an old TOF scan Stephan and I did using the MCS on the beamline MCP and found contaminant coming from the RFQ at $A = 70,71$, which means we will be in presence of several (that cannot be TOF separated) contaminants that will need to be dipole cleaned during the Kr, Br 70-72 beam time. I've made a new MEPT elog entry about this with a figure of the MCS spectra.