Minutes of the ISOLDE Physics Group Meeting, July 19th 2017

There were no comments to the minutes of the last ISOLDE PGM.

Technical news

- The meeting began with an update from Tim Giles, who shared the news that, during recent tests of the new tape station, it became apparent that the T1 and T2 triggers have a 1 ms jitter. The T1 and T2 triggers are correlated to the ejection of protons from the PSB (emitted 1 ms and 14 ms before the proton pulse, respectively). This problem has probably always been present, but never discovered. T1 is the master trigger and its accuracy cannot be improved due to a technical limitation of the Booster. This cannot be easily changed. A more accurate T2 trigger can be produced in the future by not referencing it anymore to T1, but to the Booster RF system.
- **GPS/REX/HIE-ISOLDE**
  - Most of last week has been dedicated to setting up the Se beam from the back-up target and post-accelerating it to Miniball, in order to study ^{70}Se.
  - The first run was not very successful, because the SeCO formation, necessary for producing Se, was not actually activated by the injection of CO_2, but rather by target impurities, which had been thoroughly baked out. For the second run, the back-up target was not at all baked out prior to installation on the front end. Nevertheless, during yield checks last Wednesday the yield of ^{70}Se was still rather low.
  - By Friday, it has become apparent that ^{66}Ge contamination is also present in the beam (as a sulfur molecule at the same A/Z). This is a problem that has been observed in the past. Given the low ^{70}Se rate and the Ge contamination, the users decided to switch the measurement program to ^{66}Ge.
  - Again, the CO chemistry of Se did not seem to work. One working assumption is that the batch of ZrO used for the new targets is simply too pure to favor this type of chemistry.
  - On Friday evening the GPS main transformer tripped, but as in a previous run the PLC readback in the Working Set showed status OK. Fortunately, Erwin had already seen this problem once and could relatively quickly put the separator back in operation. The trips seemed to occur when the transformer was in remote. It was thus necessary to use it in local mode for the rest of the beam time.
  - About an hour of time was lost because the PSB tripped the Medicis security chain, which then required patrolling the area (a person from the CCC had to personally come and perform the patrol).
  - Over the week-end, apart from a bit of retuning, the beam time went relatively smoothly.
  - The run finished yesterday morning.
  - The next GPS run will deliver ^{142,144}Ba beams to Miniball.
- **HRS**
  - The UC_x-n/quartz target from the ISOLTRAP cadmium run has remained on the front-end during the HIE-ISOLDE Se experiments and was used last night for an ISOLTRAP measurement of the mass of ^{131}Cs.
- **RILIS**
  - The new Edgewave pump laser was delivered and installed.
  - The broken chiller was fixed.
  - Next week there will be an intervention for fixing the air conditioning problem, therefore Monday and Tuesday no lasers will be available.

- **Targets**
  - All targets for the remaining runs from the second trimester are either installed, prepared or on schedule.

Physics and schedule

- The goal of the Miniball experiment was to perform a Coulex experiment of ^{70}Se on ^{196}Pt at 4.4 MeV/u, in order to investigate the phenomenon of shape coexistence close to the neutron-deficient Z≈N line. The total ion rate was relatively low at about 1000 ions per second and dominated by ^{66}Ge contamination (about 90%). Given the beam composition, it was decided to switch the experimental program to ^{66}Ge, which was for the first time studied as a post-accelerated beam, addressing very similar physics questions.
- The next HIE-ISOLDE experiment will address the octupole collectivity in ^{142,144}Ba. As it attempts to study an E3 excitation, statistics will be low, therefore nominal beam intensity will be crucial. In order to avoid the abundant Cs isobaric contamination, the barium beams will be extracted from the target as fluorides (a CF leak will be used).

Safety

- On Monday afternoon the yearly ISOLDE safety inspection took place. There were no direct comments during the inspection, we are waiting for the written report.
- An ongoing discussion concerns the lead inventory of ISOLDE. Two courses of action are required: first of all, the unnecessary lead bricks should be transported to an off-line storage location; second of all, a layer of paint must be applied on the bricks. The cost of the painting operation will be very large (about 10 kCHF for 200 bricks).
- One should consider what to do with the lead bricks in b. 275. This can be addressed in a future common clean-up operation. They could be transported either to storage, or to ISOLDE.

Visits

- This is the summer-student visits week at ISOLDE. Three visits are scheduled in total, yesterday, today and Friday.

AOB

- Maria Borge would like to create a cover for the ISOLDE Laboratory Portrait issue of J. Phys. G. Any interested people are kindly asked to contact her.
- The “transpalette”: of b. 275 is not at its place, but moved next to b. 508 (at the gas point). It should be returned to its original location.
- Old electronics modules of the detector lab on the ground floor will be thrown out. People interested to keep a module for memorabilia are kindly asked to pass by and claim it.

Seminar

- The meeting was not followed by a seminar.

The next PG meeting will take place on Wednesday, July 26th, at 14:00. It will be followed by the seminar of Marcus Scheck from the University of West Scotland on “Can ISOLDE investigate Pygmies?”.

Minutes taken by VM