Minutes of the ISOLDE Physics Group Meeting, August 23rd 2017

The meeting took place in the visitors' room of b. 508. There were no comments to the minutes of the last ISOLDE PGM.

- The meeting began with the presentation of the EMIS 2018 poster, creation of Kara Marie Lynch and Andree Welker.

Technical news

- **GPS**
  - In parallel to the HRS run, a series of cadmium collections took place on GLM, using a molten tin target equipped with a hot plasma ion source.
  - The target was installed on Monday last week and the beam was available on Wednesday.
  - During the run the GLM sample holder got stuck again. It uses the same software as the extraction electrode and was debugged by the piquet service. There were some problems reaching the piquet by phone due to the fact that he uses a Swisscom phone, but is living in France. Some software updates are being prepared by Ch. Mitifiot.
  - The CaO target # 613 was installed for the next run and the preliminary yields seems standard. There are however still discrepancies between the tape station and Faraday cup readings. It is important for the users not to heat this target above 1000°C, because this will trigger the sintering process.
- **HRS**
  - ISOLTRAP has been taking beam from a UC_x target with a cold plasma ion source.
  - The beam was available since Tuesday night, followed by a source optimization on Wednesday.
  - It was a difficult week for LINAC2, with many interruptions and a lot of hours of down time. There were problems with a number of elements which were replaced or repaired after lengthy debugging: RF amplifiers, HV resistor, tube, diode bridge, HV capacitor.
- **REX/HIE-ISOLDE**
  - Stable high-energy beam was delivered off-line for the first time to the XT03 beam-line (scattering chamber).
  - The stripping foils on XT03 were found to be broken and were replaced.
- **RILIS**
  - No news.
- **Targets**
  - The target #617 is ready for Collaps (Ni run).
  - A number of targets brought from the Intersecting Storage Rings are being tested off-line, to be used as back-up (#565, #587)
  - There is a problem with the suppliers for surface ion sources.

Physics and schedule

- ISOLTRAP aimed at measuring noble-gas nuclides, specifically ^{98,99}Kr and ^{48}Ar. It was very difficult to cope with the stable molecules on the argon mass and with the doubly-charged mercury on the krypton masses. However, it was possible to measure ^{98}Kr and ^{48}Ar. The analysis will decide if the precision is sufficient for the physics case (especially in the case of ^{98}Kr).

- The main part of the program of collections on GPS was aimed at a perturbed-angular-correlation determination of the quadrupole moment of ^{111}Cd, in a $CdBr_2$ sample, in both gas and liquid phase. This measurement of the quadrupole interaction of free molecules is very challenging and constitutes a novelty. The results of the beam time were not yet conclusive, but constitute a step forward in the long-term project. Some collections in the biophysics chamber were also performed Looking at the binding properties of DOTA, a standard chelator in cancer treatment, but on which many fundamental biochemical properties remain to be determined. Initial data from these experiments look quite promising.
- The next run will take place on GPS/HIE-ISOLDE. ^{15}C beams will be accelerated to the scattering chamber (kinetic energy 65 MeV) behind XT03 for probing the halo structure of ^{15}C via reactions on a lead target.
- There will be 2 additional weeks of physics at the end of the year. The first week is for HIE-ISOLDE, the second for low energy experiments. A negative-ion run is envisaged on GPS.

Safety

- All former labs in b. 3 have been declassified, in order to convert them to office spaces. Guilherme pointed out that one wooden cupboard is still in place, despite it having been used for the storage of possibly hazardous material (thorium, uranium). The radiation check should be performed very carefully, as contamination is sometimes difficult to identify.
- There was a meeting to discuss the magnetic shielding of the ISS magnet.

Visits

- There will be a visit of a student from Manchester on Monday.

AOB

- None.

Seminar

- The meeting was followed by the summer-student presentations of Ole Krarup and Kristoffer Bested Nielsen, as well as the seminar of Xiaofei Yang, with the title “Introduction to the planned Beijing Isotope-Separation-On-Line Neutron-Rich Beam Facility (BISOL)”.

The next PG meeting will take place on Wednesday, August 29th, at 14:00 in the visitors’ room of b. 508. It will be followed by the summer-student presentations of Maria Franziska Maier, Antero Toysa and Radostina Zidarova.

Minutes taken by VM