Minutes of the ISOLDE Physics Group Meeting, August 16th 2017

The meeting took place in the Visitors' Room in B.508. There were no comments to the minutes of the last ISOLDE PGM.

Technical news

GPS / REX / HIE-ISOLDE

- Since Tuesday 8th of August, ISOLDE is providing ample beams of $^{140}Sm^{34+}$ from GPS to Miniball (HIE-ISOLDE).
- On midnight of Tuesday all super conducting cavities in cryo-module 1 (XLL2) tripped. The LHe level was found to be at 12%. Luckily it was slowly recovering (10% in 1 hour). Investigations by cryo and RF experts the report was that SRF05 of XLL2 was running in field emission regime and slightly increased the power dissipation of XLL2 by <10%.
    - This might have been a small increase but the main LHe valve was set to open up until a conservative value of 33%.
    - It caused the LHe levels to drop which caused the interlock of the amplifiers of XLL2 to kick in.
    - Actions taken after the incident: Cryo experts increased the threshold to 36%. RF experts restarted the amplifiers. BE-OP needed to reduce the gradient of SRF05 and re phase the remaining 3 cavities. We were using all 5 cavities of XLL2 and the first three of XLH1. Beam was given to the users at noon of Wednesday.
- 7GAP3 amplifier tripped 4 times in total. SRF02 and 04 both tripped twice. Several CA0 power supplies tripped twice.
- Target and line heating tripped but users were quick to restart them.
- On Thursday, protons stopped for an intervention on the PSB.
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- On Sunday a 3h stop due to issues with LINAC 2.
- First Faraday cup after REX (just before HIE-ISOLDE) is not working. Perhaps a damaged cable? This is a difficult intervention (REX needs to be turned off), but is a useful cup for setting the beam. It is suggested that an intervention is performed in parallel with the stripping foil in the next week.
- FC490 is giving unreliable feedback, reading double the current. As there is no noise oscillation on the current, it is suggested that the readout electronics could be the problem.

HRS

- On Friday during the target change, the extraction electrode was inserted all the way in by itself and got stuck there. This is a recurring incident. The latest version of the FESA class is the suspected culprit, and a new version is in the works. This may be rolled out in the next 2 months, which could impact several things at ISOLDE.
- Setup for ISOLTRAP
- HV tripped a few times overnight (at 50kV). Conditioning should help.

Physics and schedule

- The HIE-ISOLDE run IS558: the experiment can be considered a full success. It resulted in one of the biggest Coulomb excitation data sets recorded at ISOLDE. With a very high level of statistics, it can be expected to extract transition probabilities and quadrupole moments with high accuracy. The ground-state band was populated up to the 8+ state, in addition to

several non-yrast states. There is also indication for the population and identification of previously unknown states.
- ISOLTRAP studying Kr98 (40 ms half life). Calibrating the target to get better signal to background contamination ratio (stable Mo and 2+ Hg). Will first check long-lived Kr to see what to expect. Initial checks suggested higher contamination than last run.
- Solid State Physics with cadmium: implantations in solid, liquid and gas phase this run. Liquid:Biophysics of cancer treatment – implantation of Cd isotopes into ice and mix with chelator. Solid: PAC meausurements of hydrogenated titanium dioxide samples, which should be complementary to Mossbauer measurements earlier this year. This will also serve as input for a new proposal to the INTC. (Gas) PAC with Cd halides – radioactive molecule in a gas phase.

Safety

- Rehearsals for collections went well – passed examination

Visits

- Visit of 44 visitors of the CERN Teachers Programme at 09:30 Thursday 17th August. Co-ordination with the SSP collection programme is necessary.

AOB

- Hanne requests pictures of the ISOLDE setups to help create an 'ISOLDE mosaic' to put on the cover of the ISOLDE portrait. The deadline is the end of the month.
- ISOLDE Ge detector – needs to be sent back to Canberra for repair.

Seminar

- The meeting was followed by a seminar by Sebastian George from MPIK Heidelberg with the title "The Cryogenic Storage Ring Project".

The next PGM will take place on Wednesday, August 23rd at 14:00 in the Visitors Room in B.508. It will be followed by the summer student talks of Ole Krarup and Kristoffer Bested Nielsen, as well as the seminar of Xiaofei Yang, with the title "Introduction to BISOL".

Minutes taken by KML