

ISOLDE Physics Group Meeting 03/05/2017

Technical news

- **HRS**
 - Vito (^{35}Ar) were the main users (IS601) with 1 shift for IDS taking (^{17}N) for calibrations.
 - There was a mix up when switching beam settings between IDS and VITO, which lead to lost time at VITO.
 - No changes had been made to target parameters when switching (as agreed; may need to re-use this target for VITO later this year).
 - However, overlapping arrays meant parameters were overwritten/changed.
 - In addition the RFQ settings could not be recovered due to a new software limit, which had been installed earlier that day
 - This has since been removed, but was implemented to prevent overheating of the amplifier.
 - Tim/Stuart are making a manual to prescribe the future operation.
- **GPS**
 - Proton scan took 6.5 hours due to badly setup separator; the beam was poorly set up on the horizontal plane.
 - It was noticed that an element had drifted.
 - Fixed/noticed at 5pm and p⁺ scan completed, but no yield measurements were possible due to this delay.
 - Independent HV trips on both the target and the line. No reason found e.g. no vacuum spike, but this has been seen many times before.
 - Drift in magnet field/voltages reported by IDS. Tuning appeared to not be optimum and transmission drifted to 10%; recovered to 65%.
 - The cause could not be identified, but Timber will be used to look at the data. Data from scanners etc. not possible yet. Elefteris is coding this into the system.
- **REX/HIE**
 - Bake out of REX is finished.
 - Cooling of cryomodules has been improved, which will lead to fewer trips during operation.
- **RILIS**
 - Indium setup continuing for upcoming runs at IDS and CRIS.
- **Targets**
 - #595 worked well last week.
 - #597 being installed now.
 - MEDICIS monotrack system was used, meaning that the time to change the target was reduced from 2 hours to only 30 minutes, and no access was required in the zone.

Physics news

- **VITO**
 - β -asymmetry studies with ^{35}Ar .
 - Motivation is fundamental physics and the V_{ud} matrix element.
 - Preliminary studies searching for appropriate crystal that can operate at high temperatures, whilst maintaining the polarization for a long time. Relaxation time vs. nuclear lifetime.
 - Avoid low temperatures (<100K) as much as possible to prevent freezing dirt onto the surface of the crystal.
 - Total of 5 candidate crystals, 2 measured in this beam time.
 - 1st crystal showed some asymmetry at low temperatures (~10K).
 - 2nd crystal (NaF) maintained reasonable asymmetry at room temperature. Magnitude is 10x more than 1st crystal, but still not huge.
 - Polarisation of lasers should also be checked.

- **IDS**
 - ^{133}Sn being studied in β -decay of ^{133}In . Also had ^{134}In β -n decay.
 - Motivation is the single-particle structure with one neutron outside of the doubly-magic ^{132}Sn core.
 - Chances to use RILIS lasers to make isomer selection, enhancing population of low-spin or high-spin states in the daughter nucleus.
 - Neutron ToF spectra obtained and states have been identified.
 - Goal to make coincidences between neutrons and gammas; analysis is ongoing.
 - A lot of contamination on these masses for Cs: 20 kBq at mass A=133 and 65 kBq at mass A=134 (in only 8 hours). $T_{1/2} = 10$ yrs and 2 hrs, respectively. IDS passed on this advice to CRIS for the following run, which will explore a similar region.

- **CRIS**
 - Laser spectroscopy of n-rich In isotopes.
 - Motivation is again in the proximity to ^{132}Sn and shell-closures.
 - Everything beyond ^{128}In will be new for laser spectroscopy.
 - Aim to measure charge radii and moments via high-resolution hyperfine spectra.

A.O.B.

- **European Researcher Night**
 - ISOLDE would like to be involved, or at least CERN would like ISOLDE to be involved, this year. It's in September.
 - Interest from French speakers would be good as much of the audience will be the local community in the Meyrin region.
 - If interested, contact Karl to discuss as the promotional material is expected to be printed and advertised a long time in advance.

- **Safety courses**
 - Nobody signed up for safety courses on 16th May yet. Please inform Karl or it will be cancelled.

- **Operations team**
 - New operator from PS who will take over piquet duties from Pascal. His name is Simone and he is training and gathering experience.

- **Setups**
 - WITCH will start up in the week of June 12th. The magnet will be ramped up for a couple of days or nights and should be communicated with accelerator people.
 - A new policy of oil-free pumps in the HIE-ISOLDE extension is to be adopted after contamination at Miniball last year.
 - Dirty exhaust lines will be replaced before the campaign.

- **INTC**
 - LOIs for stable and long-lived beams are requested at the next INTC meeting in June.

Minutes taken by LPG