

## ISAC Science Forum, 2004-07-07

**PRESENT:** Friedhelm Ames, Gordon Ball (GCB), Rick Bartman (RB), Lothar Buchmann, Greg Hackman (GH), Y. Hirayama, Dave Hutcheon (DH), H. Izumi (HI), Peter Jackson, K. Kawai, Rob Kiefl, Jens Lassen, Bob Laxdal, Phil Levy, Andrew McFarlane, Kei Minamisono, Matthew Pearson, Jean-Michel Poutissou (JMP), Chris Ruiz (CR), Paul Schmor, Martin Smith, Mike Trinczek, Pat Walden

Notes transcribed by GH

### Correction

The Cyclotron division staff member, hired for diagnostic systems support, identified in the previous minutes does indeed have a budget and organizational structure for low intensity ISAC *accelerated* beams diagnostics. The statement in the previous minutes should only apply to the ISAC low-energy beam transport systems. (thanks to PS for pointing this out)

### Reports on Prior Beam times

#### $^{26g}\text{Al}(\text{p},\gamma)$ at DRAGON: Chris Ruiz (continuing)

Final results on the  $^{26g}\text{Al}$  beam purity question:  $^{26}\text{Na}:5\times 10^{-3}$ ;  $^{26m}\text{Al}:4.8\times 10^{-5}$ .

The  $^{26g}\text{Al}$  beam rate dropped during the attempt to survey the 188 keV resonance. The target was near the end of its life, and frequent retuning of the separator magnet was needed to optimize beam delivery. The ion chamber end detector proved to be critical to rejecting random coincidences. No recoil-gamma coincidences were observed at the beam energy for a 188 keV resonance, placing an upper limit on the width of the resonance equal to the adopted value and slightly larger than recently reported values.

Highlights of subsequent discussion:

- There would be no point running the experiment again with the yields that were available at the end of this running time; however, at 200 epA (as was produced earlier), the experiment is feasible.
- The experimenters are confident that they did not miss the resonance due to mistakes in reported resonance energy, errors in beam tuning, or both.

Pending yield measurements from a new SiC target, the plan is to proceed with the 188 keV resonance measurement.

#### $\beta$ -NMR: Rob Kiefl (continuing)

In the last  $\beta$ -NMR running period, the temperature dependence of the Knight shift and Korringa relaxation rate were measured in a thin Al film. However, out of 156 hours scheduled, useable beam was only delivered to  $\beta$ -NMR for 36 hours. Furthermore, beam instabilities persist, and a new problem – a steady drop in rate – appeared. RB was able to isolate this new problem to the last electrostatic bender before the  $\beta$ -NMR cage. Cleaning of that element was recommended. (Editor's notes: After the meeting several things were done to the bender: it was thoroughly cleaned, a cold solder joint

was fixed, a cold trap was installed on the turbo backing line, several skimmer plates were removed. In following week of beam the instability has all but disappeared.)

During the discussion it was noted that the kicker was a source of instabilities. GCB noted that this component is vital to several upcoming experiments and must be fixed.

$\beta$ -NMR is scheduled to take more beam this week after installation of a new target. It was noted that some maintenance work would take 11 hours spread out over two working days (8+3). RK questioned why this job couldn't be done all at once so that there could be an extra day of good running. It was noted by management that there was one critical person who couldn't be overextended, and there was also a team of people who needed to be organized. RK also insisted on having the proper team in place so that beam could be delivered again in a timely fashion.

## **Report on Upcoming Experiments**

### **E824: $^{21}\text{Na}(p,\gamma)$ , Dave Hutcheon**

DRAGON will try again to make a "nuclear structure" measurement on a resonance whose astrophysical impact, while likely peripheral and small, needs to be established. This is the thesis work of C. Jewett and reprises an earlier unsuccessful attempt.

### **E903, Polarized $^{11}\text{Li}$ $\beta$ -n- $\gamma$ spectroscopy: H. Izumi**

HI summarized the scientific goals and experimental setup for E903, pointing out that additional low-energy neutron detectors had been added. The first attempt at this measurement in 2002 was limited by statistics and uncertainties in neutron response functions. Nevertheless evidence for new  $^{11}\text{Be}$  states was observed; unfortunately, they could not resolve the spin assignments of some particularly important state. With optimal ISAC yields and longer running times the experimenters will obtain 100 times as many events, but still need a  $^{17}\text{N}$  beam at  $\sim 10^3/\text{s}$  to properly characterize their neutron time-of-flight paddles.

## **Other Business**

JMP reminded everyone that beam requests were due July 16 and strongly encouraged everyone to use the online Beam Request form. DH pointed out that OLIS beam requests may (and must) be made with this form too. GCB reported several problems he encountered trying to use the online Beam Request form:

- You need yet another password to access the domain on which these forms are processed which can be obtained from glenn@triumf.ca.
- There is no place for requests that are not identified with an experiment number, such as yield measurements or beam development. RB requested that these be identified as separate items
- There is no confirmation or verification that your request has been received.

JMP will discuss with the people responsible. Comments on the beam requests form should also be directed to glenn@triumf.ca

**NEXT ISAC SCIENCE FORUM: July 21 at 15:15.** Please note the change of time to accommodate participants wishing to hear the plenary talks at NIC8 in the morning.