

## ISAC Science Forum, 2004-Nov-10, 10:30 to 13:30

**PRESENT:** Paul Delheij, Gordon Ball, Mike Trinczek, Marik Dombsky, John Behr, Dan Ashery, Thomas Cocolios, Rick Baartman, Pat Walden, Goetz Ruprecht, Lothar Buchmann, Dave Hutcheon, Greg Hackman, Phil Levy, René Roy, Francis Gagnon-Moisan, Dario Gigliotti, Wolf Hannes, Martin Smith, Ravuri S. Chakravarthy, Keerthi Jayamanna, Jérôme Gauthier, Colin Morton, Dan Melconian, Pierre Bricault, Jean-Michel Poutissou, Peter Jackson, Jens Dilling, Bob Laxdal, Andy Hurst

Notes taken by GH

### Reports on Prior Beam times

#### **LTNO: Paul Delheij**

30 hours of data were taken with  $5 \times 10^7/s$   $^{79}\text{Rb}$  from ISAC and 10% transmission to the LTNO sample. A resonance at 262 MHz with a width of 1% and an amplitude of 50% relative to the warm and cold operation was expected; something at 252 MHz, a width of 3% and a much lower amplitude might have been seen. Amongst the limiting factors was sample surface preparation, which was not as good as in previous runs. All corrections to the data have been done and the data is ready to be presented to the EEC. PD said the experiment would have benefited from higher yields, although MD pointed out that ISAC already has the highest  $^{79}\text{Rb}$  yields in the world and PB reiterated his concerns about the low transmission into the apparatus.

#### **$^{11}\text{Li}$ : Greg Hackman**

The experimenters increased their statistics. Relative to the beam time before the backing pump failure, they have total of 3.5 times as much data, surpassing the factor of 3 they requested. Based on prior experience they are confident they have collected a “minimally publishable” data set.

#### **E956: Tensor Current Search: John Behr**

In this beam time the experimenters looked for gamma-ray coincidences to measure recoil-order effects and limit nuclear theory corrections.  $6 \times 10^7$   $^{80}\text{Rb}$  were delivered. Trap motion was eliminated and polarization was definitely observed. The run yielded a preliminary statistical limit on the asymmetry term of about ~2%, pending detailed analysis of the polarization and systematics. Two more days of beam time are expected to yield enough data for a publishable 1% limit and for a survey of systematic effects at the 0.1% level, leading to an ultimate goal of a 0.1% measurement.

- Link: <http://trshare.triumf.ca/~hackman/public/ISACForum/e956isac4.pdf>

#### **Heracles: Jérôme Gauthier**

With  $^{21}\text{Ne}$  at 1.7 MeV/u on various targets, good discrimination was seen for particles in CsI(Tl) for fast/slow integration correlations and in  $\text{BaF}_2$  in the “non-phoswich” mode for total energy-time correlation. Upcoming beamtime will be used to establish the lower energy limit for the particle discrimination. REL noted that the beam was not optimally bunched for TOF and offered to reduce the beam bunch size from 3 to 1 ns.

**Dragon Tests: Dave Hutcheon**

A  $^{23}\text{Na}$  beam was used to check the energy calibration of the spectrometer optics with a known resonance at 508 keV/u. Of other planned tests, only a test of a new SiN window for the ion chamber had to be deferred. Analysis continues on a run to assess background for an astrophysically important resonance at 138 keV, in particular better correction for energy loss in the dead layer of the Si detector. The collaboration will propose this as a real experiment to the EEC.

**McGill: Thomas Cocolios**

In the latest beam tests, peaks now have a symmetric shape, suggesting the deceleration mesh is now properly positioned. The laser is well aligned to the beam, and fluorescence yields with widths of 160 MHz and less were seen. Many possible avenues for further improvements have been identified.

**Upcoming Beamtime****ECR source test: Pierre Bricault:**

Yields of  $^{34,35}\text{Ar}$  and  $^{17}\text{N}$  will be measured.

 **$^{34}\text{Ar}$  Lifetime: Gordon Ball**

The  $8\pi$  is ready. A thick aluminum implantation foil will be used, as it was demonstrated in  $^{18}\text{Ne}$  that this limited the effect of slow diffusion to be much smaller than the precision goal of the experiment.  $10^5/\text{s}$  are needed to obtain the statistical precision goal of the experiment.

**Other items****TACTIC: Lothar Buchmann and Goetz Ruprecht**

An axial drift chamber with a GEM amplifier layer, known as TACTIC, is being proposed for  $^8\text{Li}(\alpha, n)$  and  $^7\text{Be}(p, p)$  experiments. Detailed understanding of these reactions is needed in understanding how big bang and r-process nucleosynthesis get around the  $A=8$  gap. Results of tests with a prototype for TACTIC were encouraging. A NSERC equipment proposal has been submitted, with a goal of first experiments in 2006.

- Link: [tactic.triumf.ca](http://tactic.triumf.ca).

**General Discussion**

RR noted that he did not receive any notification about the public component of the ACOT meeting until he heard about it in person from GCB. GCB also noted there was no notification to interested persons on-site or off through official channels.