

ISAC Science Forum, 25 Feb 2004

[Secretary's note: In the future, anyone making a presentation in the ISAC2 conf room, please either print it out on *regular paper* or bring your laptop.]

Attendees:

Full meeting: Jean-Michel Poutissou, Paul Schmor, Andrew McFarlane, Gordon Ball, Jack Lee, Jens Lassen, Andy Hurst, Pierre Bricault, Jens Dilling, Marik Dombbsky, Lothar Buchmann, Pat Walden, Dave Hutcheon, John D'Auria, Greg Hackman, Martin Smith, Kei Minamisono, Zaher Salman, Paul Delheij, Peter Jackson, Dan Melconian.

Partial: Rob Kiefl, Ewart Blackmore, Peter Machule

Report on beam instabilities at β -NMR – presented by Zaher Salman

A test performed with 30 μ A protons on the SiC target in ITW delivering $10^8/s$ ^8Li at 30.6 kV showed that even when the proton beam was steady, the asymmetry measured in the bNMR setup was correlated with fluctuations in current on the production target skimmer in front of a quadrupole downstairs. The effect was not seen on the east target, none with ^{26}Al . However it had been seen on ITW with a Ta target and Al beam. When the slits after the lasers were cut down to 6 mm the asymmetry disappeared although the fluctuations in skimmer current persisted.

Heated discussion ensued.

Pierre Bricault pointed out that if slits 24 and 26 are not set to match the acceptance of the upstairs beam transport, you will inevitably be susceptible to beam instabilities. Pierre also pointed out that the west target station "1st generation" steerers did not have cups to protect the insulators from stray beam as the "2nd generation" east target station does, and that it is far better to dump beam on slits downstairs than upstairs. Marik reported that he did see these sorts of yield fluctuations even from the east target but that they were much lower in magnitude and frequency. Andy H. reported that Rick Bartmaan has never been granted time to investigate these problems, but Rob K. claimed that Rick had never been denied time. Andy McF pointed out that the Einzel lens was not energized due to discharge. No one knew how the polarizer affected the emittance of the beam. Concerns were also raised that the fringe fields were not properly calculated for the bNMR magnet.

The discussion clearly pointed in the direction that the beam optics specialists needed the time and the diagnostic tools to study the problem properly. [Secretary's note: management in charge of ISAC-II should pay particular attention to this point.] In particular, since the yield of ^8Li is so high, four-way apertures and profile monitors would be fully appropriate for fully and properly characterizing the beam.

Note: A bad feedthrough connection for the steerer's high voltages was uncovered subsequently on Module 1 which could explain the above instabilities.

Alternate Rn production – deferred to 17th March

Actinide Target Development – Paul Schmor

Paul Schmor reported that the conditions for making actinide production targets change with time, in particular, Safety group is insisting that a hot lab in Remote Handling, costing \$200,000, is needed for fabricating actinide targets based on their interpretation of CNSC regulations. The hot lab is unlikely to be ready by the end of 2004. Vigorous discussion ensued regarding Ottawa and Safety group's rules. In response to questions from Jean-Michel and Gordon Ball, Paul Schmor reported that no decisions had been taken because there was no money to act on any decision, and that there was no one coordinating the process leading up to these tests.

ACTION: Jean-Michel will reactivate the original task force that had been struck to study this problem and that had recommended a course of action. [Secretary's note: since that meeting, John Behr has volunteered to champion the actinide target.]

E947, $^{12}\text{C}+^{12}\text{C}$ Quasi-Molecular States Studied with DRAGON – Dave Hutcheon.

Dave Hutcheon reported on the upcoming Dragon experiment to study $^{12}\text{C}+^{12}\text{C}$ (E947). It turns out that the DRAGON BGO array has just the optimal granularity for disentangle cascade vs. one-step decay of highly excited quasimolecular states of ^{24}Mg populated in this reaction. Initial engineering runs were promising in overall performance, and much was learned about how to analyze the data. Options for calibrating the BGOs were discussed, including beam-induced tritium reactions *in situ* and measuring the array performance at a tagged photon facility. No operational concerns were raised for the upcoming run.

E955, Alternate Production Methods: John D'Auria

John D'Auria presented his scheme for "freezing" ^{11}C in a cold trap, physically transporting it to the ISAC ECR source, and testing it. Although carbon has never been extracted from the ISAC ECR on the test bench or otherwise, John D'Auria reported that Keerthi Jayamanna was "confident" that it would come out. Jean-Michel reiterated that this experiment must not interfere with Pierre's ECR tests, and that it still depended the outcome of a safety review meeting. A safety review was subsequently held and gave the clearance for the test .

Topics for future meetings:

Alternate Rn production (J.Behr)
Laser ion source development (J.Lassen)
Al Beams and ^{26}gAl experiments (M.Dombsky,C.Ruiz)
Upcoming ISAC runs
RIA facilities workshop/INDIA workshop reports by attendees
TUDA-II at ISACII (Tom Davinson)

Due to the conflict with next week's RIA workshop the next Science forum meeting will be on March 17th.