



PAC submits report

The 1995 TASCC Program Advisory Committee (PAC) has submitted its written report to TASCC director John Hardy. The 16-page report includes recommendations for beam time allocations, released earlier, and the committee's reasons for those recommendations.

Generally, the PAC is very positive about the accomplishments of TASCC researchers. For example, it singled out the "seminal" use of the 8π gamma-ray spectrometer for a measurement of the beta-decay branches of carbon-10; praised the TASCC-Laval nuclear reactions collaboration for the high quality of its experiments and analyses; and considered the ERDA (elastic recoil detection analysis) applications to be "beautiful studies."

The committee also found the AMS (accelerator mass spectrometry) program to be an "impressive example" of applied science spinoff, with "good growth potential."

The committee was concerned that the proposed TRIGAM gamma-ray spectrometer had not been funded by NSERC (Natural Sciences and Engineering Research Council), in spite of excellent reports, because the PAC considered it to be "... an excellent solution" to the problem of remaining competitive with newer world-class arrays. It recommended that all program participants attempt to augment the 8π spectrometer "step-wise" by adding large segmented germanium detectors, a few at a time.

On the operations side, the PAC asserted that "both the Tandem and cyclotron are performing at world-class levels, operating reliably with a wide variety of beams to support the research of a broad range of users."

Facility report

Nine sets of experiments were conducted this month, as described elsewhere in the newsletter.

Three short power outages and several power bumps interrupted beam production for a few hours early in the month.

Beams produced during July were:

Ion	Energy (MeV)
protons	9-15
^7Li	13-55
^{12}C	90
^{16}O	98 & 657
^{24}Mg	1080
^{27}Al	130
^{28}S	120
^{37}Cl	146 & 156
$^{47,48}\text{Ti}$	55
^{58}Ni	215-243
^{76}Ge	912
^{137}Au	121
^{209}Bi	230

Consequently it recommended less beam time be allocated to accelerator development, with the focus placed on several key development areas. One mentioned in particular was the new ECR (electron cyclotron resonance) ion source which, it is hoped, will produce more intense and reliable heavy-ion beams.

Program review of AECL begins

A government "program review" of AECL began this month. The review, which will cover the national-laboratory component of the crown corporation as well as its CANDU reactor business, is expected to help set future government spending in this area. The review

should be complete in late 1995, in time for next year's federal budget.

A comprehensive report on TASCC and its role in Canadian R&D is being submitted to the review panel.

Savard, Diamond receive 1994 Discovery Awards

Two TASCC staff members, Guy Savard and Bill Diamond, were announced as winners of AECL 1994 Discovery Awards by company President and CEO, J. Reid Morden on June 28.

As described by Morden, "The Discovery Award is the flagship award of our company. It is AECL's most prestigious recognition of employee achievement."

Savard receives an award for "his outstanding role in conceiving, designing and leading an experiment to test the 'Standard Model' of elementary particles and forces, which

**"AECL's most
prestigious recognition"**

led to a reduction in the uncertainty of the carbon-10 superallowed-branching ratio by a factor of four."

Diamond shares his award with Accelerator Physics Branch's Clarence Hoffmann, designer of the original extraction system for the Chalk River superconducting cyclotron. Their citation reads, "... for the development of the electrostatic deflector for the superconducting cyclotron, which now defines the state-of-the-art for performance and reliability."

The two TASCC projects are joined by five other projects recognized as deserving the company

award in 1994. Awards will be presented to winners at a reception and dinner in Ottawa in September.

Guy and Bill join two other TASCC winners, David Radford and Alfredo Galindo-Uribarri, who received their Discovery Awards in 1991 and 1992, respectively.



*Guy Savard (above)
and Bill Diamond,
winners of AECL's
Discovery Awards*



July experiments

Experiment	Projectile-breakup studies of high-energy magnesium beams on gold and carbon targets.
Researchers	C. St.-Pierre, L. Beaulieu, Y. Larochelle, M. Samri (<i>Université Laval</i>); D. Bowman, G.C. Ball, D. Fox, A. Galindo-Uribarri, E. Hagberg and D. Horn (<i>TASCC</i>)
Beams	45 AMeV ^{24}Mg ; 98 MeV and 36.5 AMeV ^{18}O
Duration	8 days

Experiment	First on-line tests of laser ion source for Canadian Penning Trap mass spectrometer.
Researchers	G. Savard, E. Hagberg, J.C. Hardy, V.T. Koslowsky, D.L. Beeching and M.J. Watson (<i>TASCC</i>); J. Crawford and S. Gulick (<i>McGill University</i>); K. Sharma (<i>University of Manitoba</i>)
Beams	9 MeV protons; 55 MeV $^{47,48}\text{Ti}$
Duration	4 days

Experiment Determination of optimum conditions for populating known intruder bands in xenon and cesium isotopes for future lifetime measurements with the 8π spectrometer.
Researchers T.E. Drake, J. DeGraaf and M. Cromaz (*University of Toronto*); V.P. Janzen (*TASCC*)
Beams 120 MeV ^{28}Si ; 215–243 MeV ^{58}Ni
Duration 2 days

Experiment Irradiations of thin samples of DNA and myoglobin with beams of varying LET (linear energy transfer). Samples were analyzed off-line by laser-desorption time-of-flight to study the molecules produced by heavy-ion beam damage.
Researchers A.J. Waker (*Health Physics Branch, CRL*); J.S. Forster (*TASCC*)
Beams 13–55 MeV ^7Li ; 90 MeV ^{12}C
Duration 2 days

Experiment Comparison of half-life measurements of scandium-42m made with: 1) ISOL (on-line isotope separator) with gas proportional counter, and 2) the 8π spectrometer.
Researchers G. Savard, E. Hagberg, J.C. Hardy, V.T. Koswlosky, D.C. Radford, M.J. Watson and D.L. Beeching (*TASCC*)
Beams 10, 11, 15 MeV protons
Duration 2 days

Experiment Measurements of beam energy by time-of-flight to determine lifetimes of various cyclotron stripper foils during irradiation with a gold beam at currents between 10 and 300 microAmps.
Researchers G.R. Mitchel (*TASCC*)
Beam 121 MeV ^{197}Au
Duration 2 days

Experiment Use of elastic-recoil detection analysis (ERDA) to study: thin Group IV optoelectronic ternary alloys and Co/Ti silicide layers on silicon; depth distribution of various elements in zirconium alloys; composition of DNA and myoglobin samples; composition of thin high- T_c material; and depth distribution of helium implanted in beryllium.
Researchers J.S. Forster (*TASCC*); R. Siegele and S.G. Wallace (*McMaster University*)
Beam 230 MeV ^{209}Bi
Duration 1 day

Experiment Study of entrance-channel effects in the superdeformed band in europium-143 with the 8π spectrometer.
Researchers S. Flibotte, J. Nieminen and K. Huber (*McMaster University*); J. DeGraaf (*University of Toronto*); A. Galindo-Uribarri, D.C. Radford, V.P. Janzen and D. Ward (*TASCC*)
Beams 146, 156 MeV ^{37}Cl ; 130 MeV ^{27}Al
Duration 3 days

Experiment Test of production of neutron-rich isotopes with ISOL.
Researchers G. Savard, E. Hagberg, V.T. Koslowsky, M.J. Watson (*TASCC*)
Beam 12 AMeV ^{76}Ge
Duration 2 days

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M. SCOTT PECK, "THE ROAD LESS TRAVELLED."

Next month

- Gamma spectroscopy of indium-115
- Study of exotic shapes in hafnium-160
- Study of ridges in tantalum-171
- Irradiation of SIMFUEL samples
- Cyclotron beam development
- Tests of SEE (single-event effects) setup
- Search for superdeformation in terbium

Facility operating record

Elapsed Time (Year-to-date) 5064 h

Beam Available	
Tandem Only	2071
Tandem + Cyclotron	980
Beam Preparation	785
Beam Development	400.5
Planned Shutdown	500.5
Unplanned Shutdown	327

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