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NEWSLETTER

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TASCC

News about Chalk River's Tandem Accelerator Superconducting Cyclotron facility for users and potential users

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New leaders to assume branch responsibilities

Following last month's retirement of Jim Geiger as manager of TASCC's Nuclear Physics branch, five "functional" leaders have been appointed to assume many of his management responsibilities.

As announced by TASCC director John Hardy, each of the five senior staff members has full authority over their assigned area of responsibility. Hardy assumes the position of Branch Manager in addition to remaining Division Director.

The leaders and their functions are:

- Bob Andrews – Personnel
- Gordon Ball – Program
- Ian Towner – Finances
- David Ward – Publications/Reports
- Walter Davies – Scheduling

Since the substantial effort required for these tasks is in addition to their normal research programs, the new leaders have been replaced as peer reviewers of TASCC research papers by: Jim Forster, Erik Hagberg, Dag Horn and David Radford.

Although most of these assignments relate only to the internal operation of the branch, users will want to note that any special requests they may have about scheduling of experiments should in future be directed to Walter Davies.

Facility report

Experiments during August included: two AMS experiments, a cyclotron beam-development run, a superallowed branching-ratio measurement, calibration of solar cells and a high-spin study of holmium.

A local power bump mid-month interrupted beam production for two hours and the Tandem tank was opened once to replace a loose terminal hoop. Total turn-around time for the Tandem repair was under 30 hours.

A beamline vacuum bellows at the entrance to the Tandem also failed, causing a 19-hour loss of beamtime while a temporary O-ring was machined and installed.

New beams of 12 & 14 MeV-per-nucleon gold-197 were developed in the cyclotron, but not extracted. For the first time, a tilt of the main magnetic field was required to achieve proper orbit separation of the accelerated beam in the cyclotron. This unusual requirement is being investigated.

Beams produced during August were:

Ion	Energy (MeV)
^1H	8
$^{35,36,37}\text{Cl}$	100
^{37}Cl	165
^{81}Br	1458
^{127}I	64
$^{127,129}\text{I}$	100
^{197}Au	2364, 2758

Workshop on deflectors planned at TASCC

A two-day workshop on high-voltage electrostatic deflector systems will be held 1994 October 3-4 at the TASCC facility.

Hosted by TASCC physicist Bill Diamond, the gathering will allow experts in the field to exchange experiences with high-voltage electrostatic devices in strong magnetic fields and to present status reports of recent progress.

Participants are expected to attend from the National Superconducting Cyclotron Lab and Texas A&M University in the U.S. and from the University of Milan and Catania Labs in Italy.

The TASCC high-voltage test stand used by Diamond will be available during the workshop for participants to test their own deflector components.

(Recently, the beam deflector in the Chalk River superconducting cyclotron produced 80 kV across an electrode gap of 5 mm for several hours during cyclotron operation with high magnetic field and r.f. power.)

Beam calculations now done on PC's

Code and data files for setting the TASCC beamline and cyclotron have been successfully transferred from a central Cyber 990 computer to a desktop 486 personal computer running DOS. About 2500 files were transferred from the Cyber before it was permanently shut down at the end of May.

Twelve major programs were converted and all magnetic field maps for the cyclotron were rewritten.

Cyclotron data files are now available from a shared area set up on the central VAX system and are accessible through a PATHWORKS network. This arrangement provides security and daily backups.

Helena Lindqvist, the accelerator physicist who handles beam calculations for cyclotron setups, says "calculations on my PC are at least as fast as with the Cyber 990, and the PC is more convenient and efficient to operate."

John Wills receives education award

TASCC technologist John Wills was presented with an AECL Research "Performance Award" this month for his valuable contributions to a new education partnership between AECL Research and local school boards.

The partnership, started in 1993, encourages high school students to consider careers in science by demonstrating science to school groups visiting the Chalk River Labs and by taking science workshops into local schools.

On his own time, John designed a project for students that involved their constructing a simple telegraph to send a message across the classroom. During May he visited four local schools to guide students through the afternoon project, and received positive feedback from students and teachers alike.



Education Partnerships coordinator Gwen Greenstock presents an AECL Research Performance Award to TASCC's John Wills.

August experiments

Experiment	Assessment of a new channel-plate stop detector for AMS and measurement of iodine-129 content in 38 environmental samples and standards.
Researchers	H.R. Andrews, W.G. Davies, B.F. Greiner, Y. Imahori, V.T. Koslowsky and J.W. McKay (<i>TASCC</i>); R.J.J. Cornett, L.A. Chant, G.M. Milton, S.J. Kramer-Tremblay, J. Jirovec, S. Richardson, L. Rolston and J. Sutton (<i>Environmental Research Branch, CRL</i>)
Beam	100 MeV $^{127,129}\text{I}$
Duration	3 days
Experiment	Measurement of superallowed branching ratio in carbon-10 with the 8π spectrometer.
Researchers	G. Savard, A. Galindo-Uribarri, J.C. Hardy, E. Hagberg, V.T. Koslowsky and D.C. Radford (<i>TASCC</i>)
Beam	8 MeV protons
Duration	7 days
Experiment	Calibration of amorphous solar-cells for possible use as particle detectors.
Researchers	A. Galindo-Uribarri, D. Bowman and D. Horn (<i>TASCC</i>)
Beam	64 MeV ^{127}I
Duration	1 day
Experiment	High-spin study of holmium-155 with the 8π spectrometer.
Researchers	D.C. Radford, A. Galindo-Uribarri and D. Ward (<i>TASCC</i>); S. Pilotte (<i>University of Ottawa</i>); S. Flibotte and S. Mullins (<i>McMaster University</i>)
Beam	165 MeV ^{37}Cl
Duration	4 days
Experiment	AMS measurement of iodine-129 content in 40 standards and samples. Timing resolution was improved to provide adequate separation from mass-128 and -130 tellurium contaminants.
Researchers	H.R. Andrews, W.G. Davies, B.F. Greiner, Y. Imahori, V.T. Koslowsky and J.W. McKay (<i>TASCC</i>); R.J.J. Cornett, L.A. Chant, G.M. Milton, S.J. Kramer-Tremblay, J. Jirovec, S. Richardson, L. Rolston and J. Sutton (<i>Environmental Research Branch, CRL</i>)
Beam	100 MeV $^{127,129}\text{I}$
Duration	3 days
Experiment	Development of cyclotron beams. Bromine-81 was accelerated to 18 MeV/A for magnet tests and gold-197 was accelerated to both 12 and 14 MeV/A for the first time.
Researchers	TASCC Beam Commissioning Team
Beams	18 MeV/A ^{81}Br ; 12 & 14 MeV/A ^{197}Au
Duration	6 days
Experiment	AMS measurements of chlorine-36 content in 60 samples and standards.
Researchers	H.R. Andrews, W.G. Davies, B.F. Greiner, Y. Imahori, V.T. Koslowsky and J.W. McKay (<i>TASCC</i>); R.J.J. Cornett, L.A. Chant, G.M. Milton, S.J. Kramer-Tremblay, J. Jirovec, S. Richardson, L. Rolston and J. Sutton (<i>Environmental Research Branch, CRL</i>)
Beam	100 MeV $^{35,36,37}\text{Cl}$
Duration	3 days

"The freedom to innovate is the freedom to dare, the freedom to risk, the freedom to succeed
— and indeed the freedom to fail."

Richard Mahoney, CEO, Monsanto Company, 1993

Next month

- Search for superdeformation in Eu-140
- DSAM measurements on Pr-129
- Irradiation of SIMFUEL samples
- Elastic recoil detection measurements
- Tests of CsI detectors
- Resonant coherent excitation of silicon
- Development of new cyclotron beams
- Precision half-life measurements of Ne-19
- tests of counters for pionic fusion experiments

Facility operating record

Elapsed Time (Year-to-date) 5927h

Beam Available	
Tandem Only	3085.6
Tandem + Cyclotron	421
Beam Development	1258.9
Planned Shutdown	685
Forced Shutdown	476.5

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