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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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Penning trap spectrometer on schedule

A major milestone was reached in the Canadian Penning trap mass spectrometer project this month with installation and initial commissioning at TASCC of the high-power lasers.

The lasers are located in a recently completed clean room which has been equipped with all necessary services for their operation. All four lasers met their operating specifications and were installed on schedule.

Other parts of the project, now 45% complete, are on track for completion by the end of 1995, with the first laser-ionized beams expected in early 1996.

The \$1.1M project is largely funded by an NSERC grant and will be operated by scientists from TASCC and the universities of McGill and Manitoba.

Nuclear Physics News International now distributed in Canada

The quarterly journal *Nuclear Physics News International* will soon be distributed in Canada through TASCC. Formerly *Nuclear Physics Europe*, the journal will be shipped in bulk to TASCC from where it will be mailed to individual nuclear physicists throughout Canada.

The cost of the Canadian copies and their distribution will be borne by TASCC.

A list of 160 recipients has been produced from the Canadian Association of Physicists membership and TASCC Newsletter mailing lists. Suggestions for additions to the list are welcome.

NPNI is also now being sent to US physicists through Argonne Labs and soon will be distributed in Japan.

The new Canadian member of the editorial board

Facility report

Since the Christmas shutdown, the Tandem has operated at terminal voltages up to 14.7 MV. Five of the breakdowns recorded this month occurred after an eight-hour period at zero terminal voltage.

Two new beams were produced by the cyclotron. These are 34.5 MeV-per-nucleon nickel-58 and 31.5 MeV-per-nucleon copper-63. They bring the total beams available to 89.

Control of the main magnet coil currents is now possible remotely from the control room, saving personnel involvement.

First trials started with an aluminum high-voltage electrode in the cyclotron electrostatic deflector. The addition of stainless-steel shielding around the electrode improved its performance. Beams produced during January were:

Ion	Energy (MeV)
^{35}Cl	175
$^{35,36,37}\text{Cl}$	100
^{40}Ca	176
^{58}Ni	2001
^{63}Cu	1985
^{127}I	50 & 64

is TASCC director John Hardy. Canadian correspondents are Jean-Michel Poutissou from TRIUMF, Denis Skopik from SAL and George Ewan from SNO.

The 1995 March issue will be the first to be distributed under the new arrangement.

TASCC Workshop planned for June

TASCC is holding a three-day workshop this summer on nuclear physics research, to be held at Chalk River Laboratories on Monday, June 26 to Wednesday June 28. There will be invited talks each morning, with afternoons mainly free for informal discussions and collaborative meetings.

Emphasis will be placed on the following three areas:

- a) high-spin gamma-ray spectroscopy,
- b) nuclear reactions with heavy ions, and
- c) physics with Penning-trap devices.

The following speakers have agreed to give invited talks:

J. Alexander (SUNY)
G. Dracoulis (Australian National U.)
S. Freedman (LBL)
T.L. Khoo (Argonne)
H.-J. Kluge (GSI)
L. Sobotka (Washington U.)
W. Trautmann (GSI)
G. Wozniak (LBL)
A. Wuosmaa (Argonne)

A few more speakers may be added later

Local workshop organizers are I.S. Towner, D.R. Bowman, A. Galindo-Uribarri and V.T. Koslowsky.

Attendance at the workshop is open to all, although advanced registration is required. To register for the workshop, or to obtain an invitation, contact Harlene Yeas at the address below. There is no registration fee.

Dates for the workshop have been chosen to fall in the week following the Nuclear Chemistry Gordon Conference (June 19-23).

The workshop schedule has space for a number of short contributed talks. Anyone wishing to give such a talk should submit a one-page abstract by 1995 May 1.

"Radware" school offered in early July

From Wednesday, June 28 to Saturday, July 1, TASCC's David Radford will hold an instructional school on the use of his software for data analysis. These dates were chosen to enable participants in the TASCC Workshop (see previous article this page) to attend the school, which will follow immediately.

The number of places is limited to 15, and will be filled on a first-come basis. Although attendance is open to all, advanced registration is required. Contact Harlene Yeas (address below) for a registration form.

A fee (yet to be established) will be charged for the school.

Workshop, school arrangements

Travel

For those arriving by air, the closest international airport is Ottawa. Participants should arrange to rent a car at the airport and drive to a hotel of their choice in Pembroke, Ontario.

The most convenient hotel is the Best Western Pembroke Inn, 1 International Drive, Pembroke, Ontario, K8A 6X9, Canada. The telephone number is (613) 735-0131. Participants should make their own hotel reservations.

The hotel is located at the intersection of Hwys. 17 and 41. No transportation will be provided between the hotel and Chalk River Laboratories. Maps will be sent to those who preregister.

Correspondence

All correspondence should be sent to Harlene Yeas, Chalk River Laboratories, AECL, Chalk River, Ontario, K0J 1J0, Canada

Harlene can be reached by:
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January experiments

Experiment Measurement of lifetimes of normal and highly deformed bands in promethium-133 and samarium-133 with the 8π spectrometer. The target was $500 \mu\text{g}/\text{cm}^2$ ruthenium-96 mounted on a gold backing. Approximately 250 M γ - γ coincidence events were obtained. Transitions linking the highly deformed band to known low-lying levels in promethium-133 were found. This information, together with the lifetime data, should allow the configuration and deformation of this band to be established.

Researchers A. Galindo-Uribarri, H.R. Andrews, G.C. Ball, V.P. Janzen and D. Ward (*TASCC*)

Beams 176 MeV ^{40}Ca

Duration 6 days

Experiment AMS measurements of chlorine-36 and iodine-129 content in approximately 90 samples and standards provided by the IAEA. Samples included mosses and lichens from Dounray and Chernobyl.

Researchers H.R. Andrews, W.G. Davies, B.F. Greiner, Y. Imahori, V.T. Koslowsky, J.W. McKay and J.C.D. Milton (*TASCC*); R.J.J. Cornett, L.A. Chant, G.M. Milton and E. Romaniszyn (*Environmental Research Branch, CRL*)

Beams 100 MeV $^{35,36,37}\text{Cl}$; 50, 64 MeV ^{127}I

Duration 6 days

Experiment Setting up of diagnostic hardware and adjustments of beam distribution in preparation for upcoming single-event effect measurements.

Researchers H.R. Andrews and J.S. Geiger (*TASCC*)

Beam 31.5 MeV/A ^{63}Cu

Duration 2 days

Experiment Development and extraction of two new beams from the superconducting cyclotron.

Researchers *TASCC* Beam Commissioning Team

Beams 34.5 MeV/A ^{58}Ni ; 31.5 MeV/A ^{63}Cu

Duration 3 days

Experiment Search for superdeformation in europium-140 via the $^{112}\text{Cd}(^{35}\text{Cl}, \alpha 3n)$ reaction using the upgraded 4π miniball array. Preliminary results indicate no evidence for superdeformation.

Researchers S.M. Mullins, S. Flibotte, J. Niemenin and J.C. Waddington (*McMaster University*); G.C. Ball (*TASCC*); T.E. Drake, J. DeGraaf and M. Cromaz (*University of Toronto*)

Beam 175 MeV ^{35}Cl

Duration 5 days

"GREAT STEPS IN HUMAN PROGRESS ARE MADE BY THINGS THAT DON'T ALWAYS WORK THE WAY PHILOSOPHY THOUGHT THEY SHOULD. IF THINGS ALWAYS WORKED THE WAY THEY SHOULD, YOU COULD WRITE THE HISTORY OF THE WORLD FROM NOW ON. BUT THEY DON'T, AND IT IS THOSE DEVIATIONS FROM THE NORMAL THAT MAKE HUMAN PROGRESS."

CHARLES F. KETTERING

Next month

- Series of single-event effects experiments
- Spectroscopy of A=60 region
- Study of population of Gd-146, 147
- Study of entrance-channel effects
- AMS measurements of Cl-36 in various samples
- Irradiation of SIMFUEL samples

Facility operating record

Elapsed Time (Year-to-date)	696h
Beam Available	
Tandem Only	377.5
Tandem + Cyclotron	60.5
Beam Preparation	121
Beam Development	65
Planned Shutdown	38.5
Unplanned Shutdown	33.5

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