

# TRIUMF



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**CANADA'S NATIONAL LABORATORY  
FOR PARTICLE AND NUCLEAR PHYSICS**

OPERATED AS A JOINT VENTURE

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UNDER A CONTRIBUTION FROM THE  
NATIONAL RESEARCH COUNCIL OF CANADA

JULY 2000

*The contributions on individual experiments in this report are outlines intended to demonstrate the extent of scientific activity at TRIUMF during the past year. The outlines are not publications and often contain preliminary results not intended, or not yet ready, for publication. Material from these reports should not be reproduced or quoted without permission from the authors.*

## CONFERENCES, WORKSHOPS AND MEETINGS

### FIRST MEETING OF THE NORTHWEST SECTION OF THE AMERICAN PHYSICAL SOCIETY

On May 21–22, TRIUMF was host to the first meeting of the Northwest Section of the American Physical Society (APS). The APS has many geographical sections which have annual physics meetings which are particularly congenial for graduate students. The NW Section, formed last year, is the first to include some Canadian provinces. It draws on physicists from Alberta, British Columbia, Washington, Oregon, Montana, Idaho and Wyoming. Vancouver was chosen as the site of the first meeting and the chairman of the organizing committee (and also the first chairman of the Section) was Erich Vogt. David Measday made many of the arrangements for the conference as the deputy chairman of the Organizing Committee. Ms. Elly Driessen of TRIUMF very ably carried out many of the local arrangements.

The meeting took place at UBC over two full days. There were eleven plenary talks, covering almost all areas of physics, and 70 contributed papers. David Hall of JILA (Colorado) delivered the opening keynote address on Bose-Einstein Condensates. Two other plenary talks were given by speakers from outside the Northwest: John Preskill (Cal Tech) on quantum computation and Eric Mazur (Harvard) on physics education. The “local” plenary speakers were: Rufus Cone (Montana State U.), Craig Hogan (U. Washington), Douglas Scott (UBC), David Strom (Oregon), Marjorie Olmstead (U. Washington), Hamish Robertson (U. Washington), George Kirczenow (SFU) and Robert Kiefl (UBC). There were also a number of invited papers in the parallel sessions.

The conference had 189 registrants, of whom 72 were students. On the Friday evening there was a fine salmon barbecue. The weather cooperated and the conference seemed to be a very successful launching of the NW Section.

### THIRD INTERNATIONAL CONFERENCE ON ISOTOPES

The Third International Conference on Isotopes (3ICI) was held at the Renaissance Hotel, Vancouver, from September 6–10, and followed successful meetings in Beijing, China (1995) and Sydney, Australia (1997). Hosted by TRIUMF, the conference was co-organized by the Canadian Chapter of the International Isotope Society.

The meeting had the theme “Isotope Production and Applications in the 21<sup>st</sup> Century” and emphasized the new and exciting developments that are imminent

in this growing field. In line with the previous meetings, the conference was structured to focus on the three main fields of isotope applications: in medicine, industry and the environment. The subject material of the papers that were presented spanned a wide range of interests reflecting the diversity of the attendees. Over 300 people attended from 23 countries and 120 oral and 50 poster papers were submitted for presentation. It was particularly pleasing that representatives from both the Federal and Provincial governments of Canada and British Columbia were able to address the conference delegates during 3ICI.

One of the highlights of this meeting was the technical tour of TRIUMF, MDS Nordion (Vancouver Operations) and the University of British Columbia’s Positron Emission Tomography (PET) facilities. The tour included visits to the new radioactive beam facility (ISAC) at TRIUMF and the MDS Nordion isotope production cyclotrons. The tour was successfully organized by Ms. Maria Freeman with the assistance of numerous TRIUMF, MDS Nordion and UBC staff.

Generous support from several principal and major sponsors allowed the Organizing Committee to sponsor many delegates from developing countries to attend 3ICI. The concerns of the sponsored delegates were looked after by Ms. Ann Fong. The Technical Exhibition was coordinated by Mr. Jozef Orzechowski and it was particularly pleasing that this aspect of the conference was fully subscribed. Thanks are also due to Mr. Rick Bloemhard for producing the very informative and useful Web pages and to Mr. Rene van den Elzen for arranging the AV and office computers that delegates were able to use during the conference.

The banquet dinner afforded the opportunity to recognize the organizers of ICI (Prof. Jinrong Zhang) and 2ICI (Dr. Clarence Hardy) with special awards. At this time, it was a pleasure to also acknowledge the efforts (often beyond the “call of duty”) of the 3ICI Conference Coordinator, Ms. Elly Driessen. Her willingness to deal with every sort of issue and problem was a major contributing factor to the success of this meeting. Finally, the role of the Conference Program Chairman, Dr. John Rolston, in arranging many of the details of the scientific program was recognized. We also wish to acknowledge the work of Ms. Jana Thomson in her role of editing and organizing several aspects of the proceedings.

The need for this series of conferences has been demonstrated by the sustained support of attending delegates from all corners of the world. The subjects discussed at these meetings were obviously topical and relevant, as demonstrated by the fact that attend-

ing members of international research laboratories and universities were also joined by their colleagues from industry. The unique mix of people attending 3ICI reflects well on the future health of this community and the future of such meetings. In this regard, it is a pleasure to announce that the next meeting (4ICI) will be held in Cape Town, South Africa in early 2002. On behalf of the Organizing Committee and the International Advisory Committee, all attendees are thanked for their participation and contributions to the success of 3ICI.

### **TRIUMF-ISAC SCIENTIFIC SYMPOSIUM (TISS'99)**

To formally launch the experimental program at ISAC, a scientific symposium was organized on December 12. There were 125 participants, and talks covered the four main scientific fields of research proposed for ISAC.

Professor S. Woosley (UCSC) and Professor A. Shotter (U. Edinburgh) reviewed the status of nuclear astrophysics, and the potential impact of the new generation of experiments at radioactive beam facilities, as well as their challenges, were covered. Professor V. Nazarewicz (Oak Ridge/U. Tennessee) and Professor J. Äystö (CERN/U. Jyväskylä) described the current focus of nuclear structure studies, while Professor A. Garcia (U. Notre Dame) and Professor N. Severijns (K.U. Leuven) reviewed the precision experiments testing symmetries in  $\beta$ -decay. The possible impact of radioactive probes for condensed matter research was described by Professor G. Schatz (U. Konstanz) and Professor R. Kiefl (UBC/TRIUMF).

The enthusiasm generated by these stimulating lectures bodes well for the future of ISAC's experimental program, and the recent successes of the facility ensure that demands for ISAC beams will force a very competitive selection of the experiments.

A banquet at Brock House later that evening was enjoyed by all those present and kicked off the celebrations of the silver anniversary of beam delivery at TRIUMF. TISS'99 demonstrated that a new lease on science has been given to TRIUMF in the field of nuclear physics and that ISAC will be a world-class facility for years to come.

### **TRIUMF USERS' GROUP ANNUAL GENERAL MEETING**

TUEC is a committee of elected members whose role is to represent the interests of the TRIUMF Users' Group to the TRIUMF administration. It has been in existence essentially as long as TRIUMF has been in operation. The elected composition of the committee during 1999 consisted of Jess Brewer, Akira Konaka, Nate Rodning, Glen Marshall, Brian Turrell, Lothar

Buchmann (past Chair) and John D'Auria (Chair). During this period Martin Comyn fulfilled the role of TRIUMF Liaison Officer. In addition, TUEC selected two members to the TRIUMF Operating Committee: John Vincent, TRIUMF and Ted Mathie, University of Regina.

During the period of the last 12 months TUEC was active in a number of areas. With the formation of the Search Committee for the next TRIUMF Director, TUEC interacted with the Chair of this committee on a number of occasions to explore the nature of the process for this selection. TUEC believed that while the best candidate must be chosen, it was also important to the TRIUMF Users that the search be conducted in an open fashion. Candidates for Director should be asked for their vision of the future of TRIUMF and allowed to present such views in open forum.

Over a period of about 10 months a new Web page for the TRIUMF Users was developed and included was a new approach to obtain key information on the interests of the Users. This new page, including the new logo, was installed by the end of the year. It can be found at <http://www.triumf.ca/tug/>.

Some time was spent on upgrading the old TRIUMF Users Manual. In particular it was proposed to have the new Manual on the TRIUMF Web page so that all Users could access it. It was planned to input as much information as possible on the new facilities now available at TRIUMF, as well as on other procedures at TRIUMF. This task is still ongoing.

The TRIUMF Users' Group Annual General Meeting was held on December 13 and the program is given below. The meeting was well attended with the keynote speakers addressing a full auditorium.

The venue for the meeting was moved to the ISAC hall in the afternoon to celebrate the Silver Anniversary of the commencing of operations (extraction of a full energy proton beam) of the TRIUMF cyclotron in December, 1974. A large group was in attendance, including a number of the individuals who were there for the original beam-on occasion. Figures 179 and 180 are pictures from the celebration. M.K. Craddock, E.W. Vogt, J.J. Burgergon, D. Gurd, and P. Depommier, among others, gave reminiscences.

|                    |  |
|--------------------|--|
| A. Astbury         | State of TRIUMF                                    |
| J.-M. Poutissou    | Overview of TRIUMF Science                         |
| G. Dutto           | State of the Machine /<br>Plans for the Future     |
| E.W. Blackmore     | The CERN Connection                                |
| D.A. Axen          | ATLAS  |
| M.J. Ramsey-Musolf | New Electroweak Physics at<br>Low Energies         |
| J.H. Brewer        | Muons: Past, Present and<br>Future                 |
| D.R. Gill          | E614   |
| W.J. McDonald      | The Search   |
| P.A. Kalyniak      | NSERC Report                                       |
| J.M. D'Auria       | TUEC Meeting (includes open<br>forum for comments) |

Silver Anniversary Celebration of TRIUMF's  
First 500 MeV Beam

|               |                |
|---------------|----------------|
| A. Astbury    | Welcome        |
| E.W. Vogt     | Recollections  |
| M.K. Craddock | The First Beam |

**TUEC Membership for 1999**

|              |            |                        |
|--------------|------------|------------------------|
| J.M. D'Auria | SFU        | <i>Chair</i>           |
| J.H. Brewer  | UBC        | <i>Chair-elect</i>     |
| L. Buchmann  | TRIUMF     | <i>Past-chair</i>      |
| A. Konaka    | TRIUMF     | 1998/1999              |
| N. Rodning   | U. Alberta | 1998/1999              |
| G. Marshall  | TRIUMF     | 1999/2000              |
| B. Turrell   | UBC        | 1999/2000              |
| M. Comyn     | TRIUMF     | <i>Liaison Officer</i> |



Fig. 179. Silver anniversary celebration attendees next to the future location of the DRAGON and TUDA beam lines in the ISAC experimental hall.



Fig. 180. Silver anniversary celebration attendees reminiscing after the speeches.