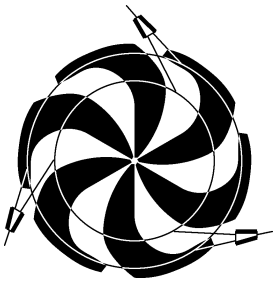
TRIUMF



ANNUAL REPORT
SCIENTIFIC ACTIVITIES
2003

ISSN 1492-417X

CANADA'S NATIONAL LABORATORY FOR PARTICLE AND NUCLEAR PHYSICS

OPERATED AS A JOINT VENTURE

MEMBERS:

THE UNIVERSITY OF ALBERTA
THE UNIVERSITY OF BRITISH COLUMBIA
CARLETON UNIVERSITY
SIMON FRASER UNIVERSITY
THE UNIVERSITY OF VICTORIA

ASSOCIATE MEMBERS:

THE UNIVERSITY OF GUELPH
THE UNIVERSITY OF MANITOBA
McMASTER UNIVERSITY
L'UNIVERSITÉ DE MONTRÉAL
QUEEN'S UNIVERSITY
THE UNIVERSITY OF REGINA
THE UNIVERSITY OF TORONTO

UNDER A CONTRIBUTION FROM THE
NATIONAL RESEARCH COUNCIL OF CANADA

DECEMBER 2004

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.

ORGANIZATION

Board of Management (BOM)

The Board of Management of TRIUMF manages the business of the facility and has equal representation from each of the five member universities. The Board met 3 times during the year. At the end of 2003 the Board comprised:

University of Alberta	Dr. W.J. McDonald	Chairman
	Dr. A. Noujaim	
University of British Columbia	Dr. D. Brooks	
	Dr. B. Turrell	
Carleton University	Dr. R. Carnegie	
	Dr. F. Hamdullahpur	
Simon Fraser University	Dr. M. Plischke	
	Dr. C.H.W. Jones	
University of Victoria	Dr. R. Keeler	
	Dr. M. Taylor	
Private Sector	Ms. G. Gabel	Environmental Sensors Inc.
	Dr. H. Ing	Bubble Technologies Inc.

Towards the end of 1987, Board membership was expanded in anticipation of a broadening of the TRIUMF joint venture to include a more national representation of Canadian universities long associated with the TRIUMF experimental program. The University of Manitoba and Université de Montréal became associate members, and the University of Toronto joined as an observer. At the end of 1988, University of Toronto's status changed from that of observer to associate member. In March, 1989 the University of Regina became an associate member. In December, 1998 Carleton University and Queen's University became associate members. In March, 2000 Carleton University's status changed from that of associate member to full member. In 2001 two private sector positions were added. In October, 2001 McMaster University became an associate member and effective April 1, 2003 the University of Guelph became an associate member. Associate membership at year-end:

Non-voting Associate members:	TBA	University of Guelph
	Dr. W.T.H. van Oers	University of Manitoba
	Dr. A.J. Berlinsky	McMaster University
	Dr. C. Leroy	Université de Montréal
	Dr. A. Hallin	Queen's University
	Dr. K. Bergman	University of Regina
	Dr. R. Orr	University of Toronto
ex officio members:	Dr. W. Davidson	National Research Council
	Dr. P. Sinervo	ACOT
	Dr. A. Shotter	Director, TRIUMF
	Dr. J.-M. Poutissou	Associate Director, TRIUMF
	Mr. J. Hanlon	TRIUMF, Recording Secretary

Administration

Under the directorship of Dr. A. Shotter, TRIUMF personnel were grouped into Divisions, with Division Heads as follows:

Division Head, Science Division	J.-M. Poutissou
Division Head, Accelerator Technology Division	E.W. Blackmore
Division Head, Cyclotron Operations Division	R. Poirier
Division Head, Technology Transfer Division	P.L. Gardner
Division Head, ISAC Division	P.W. Schmor
Division Head, Administration Division	A. Shotter

Operating Committee

The TRIUMF Operating Committee advises the Director and the TRIUMF Board of Management (through the Director) on matters relating to the scientific productivity and direction of the TRIUMF laboratory. The Operating Committee consists of one voting member from each of the five full-member universities, two voting members representing the interests of the Users, and one representing TRIUMF staff. The Associate Director is a non-voting member. The Operating Committee met 5 times in 2003. Members of the committee (alternate members in parentheses) at the end of 2003 were:

Dr. A. Shotter	Chairman	Director	
Dr. J.-M. Poutissou	*(ex officio)*	Associate Director	
Dr. J. Pinfold		University of Alberta	(Dr. D. Gingrich)
Dr. G. Oakham		Carleton University	(Dr. R. Carnegie)
Dr. J.M. D'Auria		Simon Fraser University	(Dr. P. Percival)
Dr. M. Pospelov		University of Victoria	(Dr. R. Kowalewski)
Dr. D. Bryman		University of British Columbia	(Dr. T. Mattison)
Dr. G.M. Luke		Users	(Dr. J. Sonier)
Dr. S. Yen		Users	(Dr. L. Lee)
Mr. R. Baartman		TRIUMF Employee Group	(Mr. R. Ruegg)
Mr. J. Hanlon	Recording Secretary	TRIUMF	
Dr. W. Davidson	*(ex officio)*	National Research Council	

Agency Committee on TRIUMF (ACT)

The role of the Agency Committee on TRIUMF is to oversee the Government of Canada's investment in TRIUMF and the economic benefits derived from that investment, with a particular focus on financial and commercialization matters. The Committee provides advice to the Minister of Industry, in conjunction with the reports of the NRC Advisory Committee on TRIUMF on scientific matters. The Agency Committee on TRIUMF usually meets twice a year.

Dr. A.J. Carty	Chairman	President, National Research Council
Dr. T. Brzustowski		President, Natural Sciences and Engineering Research Council
Mr. J.-C. Villiard		Deputy Minister, Industry Canada
Dr. W. Davidson	Secretary	National Research Council

NRC Advisory Committee on TRIUMF (ACOT)

The Advisory Committee on TRIUMF advises the National Research Council on all aspects of the TRIUMF program insofar as they relate to the determination and administration of the federal contribution to TRIUMF. The Committee provides scientific program advice to the Director of TRIUMF. The Committee reports to the National Research Council each year on its findings and recommendations, with particular reference to the arrangement entered into by the National Research Council and TRIUMF under which contribution payments are made, thereby ensuring that TRIUMF utilizes its program in support of its defined role as a national facility and works with all constituencies of the Canadian subatomic physics community to sustain a national program in the field of research, within the context of the funds available.

Dr. P. Sinervo	Chairman	University of Toronto
Dr. W. Davidson	Secretary	National Research Council
Dr. J. Äystö		University of Jyväskylä
Dr. W.J.L. Buyers		National Research Council
Dr. A. Fenster		J.P. Robarts Research Institute
Dr. J. Guigné		Guigné International Ltd.
Dr. G. Kalmus		Rutherford Appleton Laboratory
Dr. W. Nazarewicz		University of Tennessee
Dr. C. Rolfs		Ruhr-Universität Bochum
Dr. J. Siegrist		University of California, Berkeley
Dr. P. Vincett		FairCopy Services Inc.
Dr. D. Karlen	*(ex officio)*	University of Victoria
Dr. R. Keeler	*(ex officio)*	University of Victoria
Dr. W.J. McDonald	*(ex officio)*	University of Alberta
Ms. K. Wilson	*(ex officio)*	Natural Sciences and Engineering Research Council

TRIUMF Safety Management Committee

Dr. A. Shotter		Director, TRIUMF
Dr. J.-M. Poutissou		Associate Director/Head, Science Division
Dr. E.W. Blackmore		Head, Accelerator Technology Division
Dr. R. Poirier		Head, Cyclotron Operations Division
Mr. P.L. Gardner		Head, Technology Transfer Division
Dr. P.W. Schmor		Head, ISAC Division
Mr. M. Stenning		Head, Operations Group
Mr. D. Preddy		TAPC Chairman
Mr. G. Wood		Industrial Safety Officer/TAPC
Mr. L. Moritz		Head, Environmental Health & Safety
Mr. J. Hanlon		Manager, Human Resources & Administration
Dr. S. Zeisler		Head, Applied Technology Group
Dr. B. Abeysekera		MDS-Nordion
Mrs. K. Gildert	Recording Secretary	

Experiments Evaluation Committees (EEC)

In July, 1994 the Experiments Evaluation Committee was formally split into two committees representing subatomic physics and μSR physics. In 2000 the μSR Committee changed its name to the Materials Science Committee and in 2003 the name was changed to Molecular and Materials Science Experiments Evaluation Committee. In 2003 these committees comprised:

Subatomic Committee:

Dr. I.S. Towner	Chairman	Queen's University
Dr. J.-M. Poutissou	Associate Director/*(ex officio)*	TRIUMF
Dr. B. Jennings	Secretary	TRIUMF
Dr. W. Ramsay	*(ex officio)*	TUEC Chairman/TRIUMF
Dr. S.J. Freedman		Lawrence Berkeley Laboratory
Dr. B.M. Sherrill		NSCL/Michigan State University
Dr. F.K. Thielemann		Universität Basel
Dr. R.E. Tribble		Texas A&M University

Molecular and Materials Science Committee:

Dr. B. Gaulin	Chairman	McMaster University
Dr. J.-M. Poutissou	Associate Director/*(ex officio)*	TRIUMF
Dr. P.W. Percival	Secretary/*(ex officio)*	SFU/TRIUMF
Dr. G.M. Luke	*(ex officio)*	TUEC Past Chairman/McMaster University
Dr. M. Gingras		University of Waterloo
Dr. F. Marsiglio		University of Alberta
Dr. S. Roorda		Université de Montréal
Dr. G.A. Sawatzky		University of British Columbia
Dr. T.W. Swaddle		University of Calgary

Life Sciences Project Evaluation Committee (LSPEC)

Dr. J. Link	Chairman	University of Washington
Dr. J.-M. Poutissou	Associate Director/*(ex officio)*	TRIUMF
Dr. L.P. Robertson	Secretary	University of Victoria
Dr. R.F. Dannals		Johns Hopkins PET Center
Dr. S. Houle		PET Centre – CAMH/University of Toronto
Dr. R. Lecomte		Université de Sherbrooke
Dr. A.J.B. McEwan		Cross Cancer Clinic