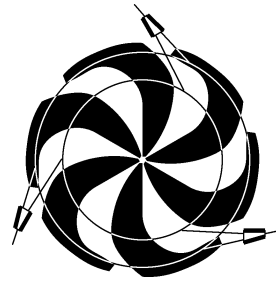


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FOR PARTICLE AND NUCLEAR PHYSICS**

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UNDER A CONTRIBUTION FROM THE
NATIONAL RESEARCH COUNCIL OF CANADA

DECEMBER 2003

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.

LIFE SCIENCES PROJECT PROPOSALS

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The following lists life sciences project proposals received up to the end of 2002 (missing numbers cover proposals that have been withdrawn or replaced by later versions, rejected, or combined with another proposal). Page numbers are given for those experiments which are included in this Annual Report.	
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LS6. Bone calcium resorption studies in pre- and peri-menopausal women using accelerator mass spectrometry [completed], <u>R.R. Johnson</u> , A. Priestman, J.C. Prior (<i>UBC</i>), A. Altman, W.Z. Gelbart, V. Sossi (<i>TRIUMF</i>), D. Berkovits, S. Ghelberg, M. Paul (<i>Racah Inst., Hebrew U. Jerusalem</i>), L.M. Shulman (<i>Chaim Sheba Med. Centre</i>), R. Chechik (<i>Weizmann Inst.</i>), E. Venzel (<i>SFU</i>)	
LS7. PET 3D data quantification and integration into a research clinical environment [completed], K.S. Morrison, T.J. Ruth, V. Sossi, M.W. Stazyk (<i>UBC-TRIUMF</i>), K.R. Buckley (<i>TRIUMF</i>), J.S. Barney (<i>VH&HSC</i>), D. Sirota, B.J. Snow (<i>UBC</i>)	
LS8. Radiotracers for the physical and biosciences [active], L. Buchmann, T.J. Ruth, S.K. Zeisler (<i>TRIUMF</i>), A.D.M. Glass, R.R. Johnson, M. Lowe, C.E.R. Orvig (<i>UBC</i>), T.F. Budinger (<i>Lawrence Berkeley National Lab</i>)	123
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LS11. Development of single photon imaging agents [inactive], <u>D. Lyster</u> (<i>UBC-VH&HSC</i>), L. Alcorn, M. Hampong, T. Lutz, C. Vo (<i>UBC</i>)	
LS12. A simulation platform for the design of position encoding multicrystal detectors [completed], A. Altman, <u>C. Moisan</u> , <u>J.G. Rogers</u> (<i>TRIUMF</i>), E. Hoskinson, G. Tsang (<i>UBC</i>)	
LS13. Utility of 2-[F-18]-fluoro-2-deoxy-d-glucose SPECT imaging in the evaluation of patients with solitary pulmonary nodules [completed], A. Celler, D. Lyster, <u>D. Worsley</u> (<i>UBC</i>), M. Adam (<i>TRIUMF</i>)	
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LS15. Investigation of frame realignment on the reproducibility of ^{18}F -6-fluorodopa positron emission tomography [inactive], <u>K.S. Morrison</u> , T.J. Ruth (<i>UBC-TRIUMF</i>), B.J. Snow (<i>UBC</i>)	
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- LS21. Aluminum kinetics in plants [inactive], A. Glass, R.R. Johnson, L. Oliveira (*UBC*), K. Buckley, Z. Gelbart (*TRIUMF*), D. Berkovitz, M. Paul (*Hebrew U. Jerusalem*), E. Venczel (*SFU*)
- LS22. Virtual national biomedical tracer facility [inactive], T.J. Ruth, J.S. Vincent (*TRIUMF*), E.J. Peterson, D. Phillips (*Los Alamos National Lab*)
- LS24. Scanning for early detection and staging of breast cancer: a comparative study using FDG PET and MIBI SPECT [deferred], P.F. Cohen, P. Klimo (*Lions Gate H.-UBC*), M. Cackette (*EBCO Industries Ltd.*), J. Whiffen (*JALORN*), V. Sossi (*TRIUMF-UBC*), J. Porter (*Nordion Int.*), R.R. Johnson (*UBC*)
- LS25. 3D PET in human neuroreceptor studies: quantification and reconstruction [completed], K.S. Morrison, T. Oakes, T.J. Ruth, V. Sossi (*UBC-TRIUMF*), K.R. Buckley (*TRIUMF*), M. Krzywinski, M. Schulzer, J. Stoessl (*UBC*)
- LS26. A gaseous planar positron source for routine 3D PET normalization [completed], T. Oakes, T.J. Ruth, V. Sossi (*UBC-TRIUMF*), K. Buckley, S. Jivan, R. MacDonald (*TRIUMF*)
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- LS28. Evaluation of potentially viable myocardium with dobutamine myocardial SPECT imaging [completed], H. Abbey, A.-Y. Fung, L. Hook, D.M. Lyster, D.F. Worsley (*VH&HSC*), M. Adam, S. Jivan (*TRIUMF*)
- LS29. Production and distribution of FDG for clinical studies [completed], D. Lyster, D. Worsley (*VH&HSC*), P. Cohen (*Lions Gate H.*), H. Nadel (*Children's H.*), M.J. Adam, S. Jivan, T.J. Ruth, V. Sossi (*TRIUMF*) 127
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- LS35. Development of F-18 labelled nitroimidazole PET imaging agents for tissue hypoxia [active], M.J. Adam (*TRIUMF*), K. Skov (*BCCRC-UBC*), S. Evans, C. Koch, A. Kachera (*U. Pennsylvania*), I. Baird, B. James (*UBC*) 129
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- LS38. Dopaminergic tracers kinetic modeling with minimally invasive scanning procedures [completed], G. Chan, M. Krzywinski, T.J. Ruth, V. Sossi (*UBC-TRIUMF*), J. Holden (*U. Wisconsin*), D. Doudet, J. Stoessl (*UBC*)
- LS39. Positron emission profiling (PEP) for pulp and paper fluid dynamic studies [active], M. Martinez, J. Olson (*UBC*), M.J. Adam, K. Buckley, S. Jivan, T.J. Ruth, V. Sossi (*TRIUMF*) 129
- LS40. F-18 FDG cardiac PET scans using a coincidence PET/SPECT camera to assess myocardial viability in patients with fixed abnormalities and low ejection fractions on gated sestamibi stress tests [deferred], P.F. Cohen, J. Imrie, K. Woo (*Lions Gate H.*), D. Worsley (*Vancouver General H.*), V. Sossi (*TRIUMF-UBC*), T. Ruth (*UBC-TRIUMF*), R.R. Johnson (*UBC*)
- LS41. Impact of the ADAC coincidence PET camera in the management of selected cancer patients [deferred], P.F. Cohen, J. Imrie, K. Woo (*Lions Gate H.*), J. Powe (*Vancouver General H.*), V. Sossi (*TRIUMF-UBC*), T. Ruth (*UBC-TRIUMF*), R.R. Johnson (*UBC*)
- LS42. Configuration modeling and image reconstruction studies on a depth encoding research tomograph [active], T. Ruth, V. Sossi (*UBC-TRIUMF*), V. Astakhov (*UBC*), K. Buckley (*TRIUMF*), S. Houle (*Centre Addiction & Mental Health, Toronto*), C. Moisan (*U. Laval*) 130
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- LS44. Development of a high-speed formation (areal density) measurement system for paper [active], M. Avikainen, S. Heath, M. Martinez, J. Olson (*UBC*), K. Buckley, T.J. Ruth, M. Salomon (*TRIUMF*)
- LS45. Modelling genetic risk for ionizing radiation exposure in space [deferred], J.G. de Boer, J. Holcroft, S. Zhang (*U. Victoria*)

- LS46. Modelling of the dopaminergic system in more severely affected PD patients [active], T.J. Ruth, V. Sossi (*UBC-TRIUMF*), J. Holden (*U. Wisconsin*), R. de la Fuente-Fernandez, D. Doudet, C.S. Lee, M. Schulzer, J. Stoessl (*UBC*)
- LS47. PET imaging of recurrent prostate cancer with 2-F-18-fluoromethy-dimethy-2-hydroxyethylammonia (FCH), [active], M. Gleave, D. Lyster, J. Powe, D. Worsley (*Vancouver General H.-UBC*), M. Adam (*TRIUMF*), H. Abbey (*Vancouver General H.*)
- LS48. Anorexia nervosa: autonomic dysfunction, the brain and the heart [completed], A.S. Belzberg, C.L. Birmingham, C. Kerr, G.P. Sexsmith, M. Stilwell (*St. Paul's H.*), M.J. Stock (*St. George's H.*), P. Beumont (*U. Sydney, Aust.*), V. Sossi (*UBC-TRIUMF*)
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- LS56. Synthesis of radiolabelled nucleotides and oligonucleotides [active], M.J. Adam, H. Dougan, A. Studenov (*TRIUMF*), J. Wilson (*Cross Cancer, Edmonton*), J. Hobbs (*UBC*)
- LS57. Quantitative imaging with the Concorde MicroPET [active], A. Rahmin, V. Sossi (*UBC*), K. Raywood, T.J. Ruth (*UBC-TRIUMF*), K. Buckley, P. Piccioni (*TRIUMF*), C. Thompson (*Montreal Neurological Inst.*), S. Lapi (*SFU*) 134