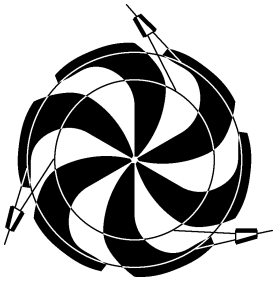
TRIUMF



ANNUAL REPORT
SCIENTIFIC ACTIVITIES
2001

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 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

OCTOBER 2002

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.

Appendix B

SEMINARS*

The following seminars were presented at TRIUMF this year.

12/01 *The Strange World of the π-N Sigma Term*, Marcello Pavan, TRIUMF.
18/01 *Cold Neutrino Dark Matter*, Kev Abazajian, U. California, San Diego.
24/01 *Nucleon Dressing and Causality Constraints*, Sergey Kondratyuk, TRIUMF.
30/01 *Neutrino Flavour Transformation and Prospects for the r-Process in Core-Collapse Supernovae*, Mitesh Patel, U. California, San Diego.
31/01 *Next Linear Collider. The Path to Subnanometer Beams*, Andrei Seryi, SLAC.
01/02 *Hadrons in Nuclear Matter*, Abhee Dutt-Mazumder, McGill U.
08/02 *Determining Radioisotope Production in Novae from Laboratory Measurements Made at the ORNL HRIBF*, Dan Bardayan, ORNL.
12/02 *The Strong Isospin-Breaking (IB) Correction for ϵ'/ϵ at Next-to-Leading Order (NLO) in the Chiral Expansion*, Carl E. Wolfe, Indiana U.
15/02 *Extra Dimensions, SN1987a, and Nucleon-Nucleon Scattering Data*, Daniel Phillips, Ohio U.
20/02 *Nuclear Anapole Moment – A Manifestation of Nuclear Parity Nonconservation*, Cheng-Pang Liu, U. Washington.
22/02 *Mass Measurements at ISOLDE for Nuclear (Astro)physics*, David Lunney, CSNSM, U. de Paris Sud, Orsay.
26/02 *Recent Result from K2K Experiment, and a Proposal of the Second Generation Neutrino Oscillation Experiment with New JHF 50 GeV PS and Super-Kamiokande*, Tsuyoshi Nakaya, Kyoto U.
27/02 *Direct Mass Measurements of Exotic Nuclides with ISOLTRAP and SHIPTRAP*, Jens Dilling, GSI Darmstadt.
01/03 *Muon Properties and the Search for "New Physics"*, Andrzej Czarnecki, U. Alberta.
02/03 *Exotic Beam Coulomb Excitation*, Greg Hackman, U. Kansas.
08/03 *Breakup of Radioactive ^{17}F*, Felix Liang, ORNL.
13/03 *Explosive Nucleosynthesis Through ^{22}Mg*, Alan Chen, TRIUMF.
15/03 *Hard Virtual Photons: For Never a Dull Moment*, Andy Miller, TRIUMF.
20/03 *Electric Dipole Moments and the Mass Scale of T-Violating, P-Conserving New Physics*, Michael Ramsey-Musolf, U. Connecticut.
29/03 *A Precision Measurement of the Anomalous Magnetic Moment of the Muon: A Search for Physics Beyond the Standard Model*, Paul Debevec, U. Illinois at Urbana-Champaign.
05/04 *Fundamental Symmetries and Nuclear Beta Decay*, Andrew Hime, LANL.
19/04 *Variations on a Theme by Dirac: Magnetic Monopoles in Gauge Field Theories*, Ioan Popescu, U. Kentucky.
25/04 *Nuclear Astrophysics Program in the CNS-RIKEN Joint Venture*, Shigeru Kubono, CNS, U. Tokyo.
26/04 *Quark Matter in Neutron Stars*, Sanjay Reddy, INT, Seattle.
03/05 *Neutrino-Induced Muon Results from SNO*, Chris Waltham, UBC.
14/05 *Laser Spectroscopy of Long-Lived Lanthanum Isotopes*, Hans Schuessler, Texas A&M U.
22/05 *Does a Deeply Bound Kaonic State Exist?*, Masahiko Iwasaki, Tokyo Inst. Tech.
24/05 *Modelling of the Dopaminergic System with Positron Emission Tomography (PET)*, Vesna Sossi, TRIUMF.
21/06 *Solar Neutrino Results from SNO*, Richard Helmer, TRIUMF.
28/06 *Classical Novae: A Laboratory for Nuclear Astrophysics*, Jordi Jose, Polytechnical U. Catalonia/Inst. for Spatial Studies of Catalonia, Barcelona.
05/07 *Status of REX/ISOLDE*, Oliver Kester, CERN.
05/07 *The 4π Detector for RIB Facility: Fragment Spectrometer FOBOS and its Applications*, Dmitri Kamanin, JINR, Dubna.
10/07 *Who, What, Where, When, Why, and How of Patent Law for Scientists and Engineers*, Donald Daley and Hrayr Sayadian, Birch, Stewart, Kolasch and Birch, LLP.
18/07 *MELPOMENE, a Measurement of Positron Longitudinal Polarization from Muon Decay*, Jules Deutsch, U. Catholique de Louvain.
19/07 *Detection of Short-Lived Nuclides as Probes of Nucleosynthesis*, Michael Paul, Hebrew U.
24/07 *Kaon Condensation in QCD*, Thomas Schaefer, SUNY at Stony Brook/RIKEN-BNL.
26/07 *Quasiparticle Excitation in the Mixed State of MgB_2 Probed by μSR*, Ryosuke Kadono, Inst. Materials Structure Science, KEK.
27/07 *Nickel, Iron and Gamma Ray Bursts*, Gail McLaughlin, SUNY at Stony Brook.
30/07 *Measurement of V_{ub} Using b Semileptonic Decay*, Jiansen Lu, UBC.
02/08 *Coulomb Gauge QCD, Confinement, and the Constituent Quark Model*, Eric Swanson, Pittsburg U./TJNAF.
23/08 *The Casimir Effect at Finite Temperature*, Ademir E. Santana, IF/UFBA, U. Federal da Bahia/Theoretical Phys. Inst., U. Alberta.

24/08 *The RIB Project at VECC Calcutta: A Status Report*, Alok Chakrabarti, VECC, Calcutta.
28/08 *^{8}Li-NMR on ^{8}Li Adsorbed on Metal and Semiconductor Single Crystal Surfaces*, Dieter Fick, Philipps U., Marburg.
06/09 *CP Violation from Compactification*, Darwin Chang, National Tsing Hua U., Taiwan/LBNL.
07/09 *Searching for Strangeness -2 Hypernuclei at BNL*, Charles Davis, TRIUMF.
13/09 *Recent Results from the Microscopic Schrödinger Optical Model*, Steven Karataglidis, LANL.
18/09 *Linear-Geometry Ion Traps: From Atomic Collisions to Sympathetic Laser Cooling of Molecules*, Robert I. Thompson, U. Calgary.
21/09 *Ultra-Trace Isotope Analysis by High-Resolution Triple-Resonance Ionization Mass Spectroscopy*, Bruce Bushaw, Pacific Northwest National Lab.
24/09 *The Status of Colour Transparency Below $Q^2 \sim 10$ GeV^2/c^2*, Ken Garrow, TJNAF.
03/10 *Heavy-Ion Linac Development for the U.S. RIA Project*, Peter N. Ostroumov, ANL.
05/10 *New Predictions with a Microscopic Model of p-Nucleus Scattering*, Ken Amos, U. Melbourne.
11/10 *Next Generation Long Baseline Neutrino Experiment*, Akira Konaka, TRIUMF.
15/10 *Doubly Strange Nuclear Systems and Beyond*, Avraham Gal, Hebrew U., Jerusalem.
17/10 *Nuclear Astrophysics: Observations – Stellar Models – Nucleosynthesis*, Falk Herwig, U. Victoria.
22/10 *The Past and Future of QCD*, Harry Lipkin, Weizmann Institute.
25/10 *Recent Results from Belle*, Asish Satpathy, U. Cincinnati.
06/11 *Latest Results on the Measurement of $K^+ \to \pi^+ \nu\bar{\nu}$*, Joe Mildenburger, TRIUMF.
22/11 *Radiative Corrections to Polarized Muon Decay Spectrum*, Andrej Arbuzov, U. Alberta.
29/11 *Radioactive Beams and the Synthesis of Super-Heavy Elements*, Mark Stoyer, LLNL.
06/12 *Rare Weak K and B Decays*, Chao-Qiang Geng, National Tsing Hua U., Taiwan.

The following joint UBC/TRIUMF seminars were presented this year.

19/01 *Top Physics at the Tevatron*, Pierre Savard, U. Toronto.
25/01 *Tests of the Electroweak Gauge Theory at LEP2*, Alain Bellerive, U. Chicago.
02/02 *New Physics Searches with Photonic Final States at LEP2*, Peter Krieger, Carleton U.
08/11 *CP Violation: la Belle Époque*, Steve Olsen, U. Hawaii.

The following lunchtime seminars were presented at TRIUMF this year.

08/01 *TWISTING with F90*, Art Olin, TRIUMF.
09/03 *Developing an ^{15}O Beam at TRIUMF*, Alex Zyuzin, TRIUMF.
02/04 *NALTA: A Vast Network of Cosmic Ray Air Shower Arrays*, Jim Pinfold, U. Alberta.
07/05 *The ATLAS Trigger: Challenges and Expected Performance*, Monika Wielers, TRIUMF.
26/06 *Neutron Spectra Unfolding Using a Genetic Algorithm*, Bhaskar Mukherjee, National Medical Cyclotron, Australia.
06/07 *Neutron Detection for Diagnosing Tokamak Plasmas*, Vitaly Kovaltchouk, Troitsk.

---

* All matters concerning TRIUMF seminars should be referred via e-mail to seminar@triumf.ca

The latest listing of TRIUMF seminars can be seen at http://www.triumf.ca/seminars/