CURRICULUM VITAE

Dr. ROBERT IAN THOMPSON, *P.Phys.*

Associate Professor and Head of Department

Department of Physics and Astronomy, University of Calgary

Last Updated**:** Fall 2011
Calgary, Alberta

Table of Contents

Summary / Overview:

Rob Thompson is currently an Associate Professor of Physics and Head of the Department of Physics and Astronomy at the University of Calgary. He completed his doctoral work in Laser Physics under the supervision of Prof. B.P. Stoicheff at the University of Toronto in 1994. He was a staff scientist at the Max-Planck-Institute for Quantum Optics outside Munich Germany working with Prof. H. Walther in Ion Trap Physics, and a Post-Doctoral Fellow at Rice University in Houston Texas with Prof. R.F. Curl in Kinetic Spectroscopy, before accepting a Faculty Position at the University of Calgary in 1998.

He currently leads an Atomic, Molecular, and Optical (AMO) Physics **research** group in the field of Trapping of Atoms, Molecules and Exotic Species, as well as leading an interdisciplinary research group in friction and drag in sliding sports and heading up the Department's efforts in Physics Education Research and Development. He is a team leader and one of the founding Canadian members of the international ALPHA (Anti-hydrogen Laser PHysics Apparatus) collaboration, which is a CERN-based experimental effort to trap and study antihydrogen. Last year's trapping of antihydrogen was recognized by IOP as the top scientific achievement of 2010. Over his career he has close 70 publications of all forms published or submitted, with almost 50 authored or co-authored peer reviewed papers already published. In addition, he has presented or co-authored over 125 conference presentations or scientific talks, of which nearly a third were refereed or invited presentations. In the past five years he has authored or co-authored 31 peer-reviewed manuscripts (including 1 in Nature, 1 in Nature-Physics, and 5 in Physical Review Letters), 2 commissioned reports, and 7 other conference proceedings articles. His physics research is currently funded by NSERC (well over $1M in NSERC grants as a principle or co-investigator over the last five years), while his work in physics education research and development is funded by a range in internal University of Calgary sources (over $200k in grants in the last five years). He currently **supervises** one post-doctoral researcher, four Ph.D. students and one B.Sc. student, as well as co-supervising a fifth Ph.D. student, and he has supervised or co-supervised the completion of 7 M.Sc. and 1 Ph.D. thesis projects. He has served on the committees of 54 different graduate students and supervised or co-supervised research projects for 22 undergraduates.

In terms of **teaching**, Dr. Thompson is a nationally recognized physics educator. He was awarded the 2007 Canadian Association of Physicists (CAP) Medal for Excellence in Physics Education, as well as receiving the University of Calgary's Faculty of Science Excellence in Teaching Award (2003) and Student Union Teaching Excellence Award (2004). He has taught quantum mechanics, laser physics, and electromagnetism courses at the first-year, senior undergraduate, and graduate levels, and worked extensively in new course and new program development. He was one of the founding members of the Faculty of Science's RAISE (Research And Instruction in Science Education) Group, which is dedicated to enhancing the educational experience in Science for students and faculty at the University of Calgary.

On the **administration and service** side, Dr. Thompson has an extensive track record both nationally and within the University of Calgary. He is currently a member of the Board of Governors of the University of Calgary and of the Board of Management of TRIUMF. Internally, prior to his current term as Head of Department, he spent three years as Assistant Head and Undergraduate Program Director, and four years as Chair of the Department's Graduate Program, directing its rapid growth from roughly 20 to 70 students over his term. At some time he has served on or chaired virtually all of the Department's major committees and many faculty and staff hiring committees. He has served on the University's General Faculties Council, Academic Program Committee, Continuous Learning Committee, and Faculty of Graduate Studies Appeals Committee (Chair in 2010-11). Nationally, he is a member of the executive and council of the Canadian Association of Physicists (CAP) as its Director of Student Affairs, past-chair of the CAP Division of Physics Education, and Secretary-Treasurer of the Division of Atomic, Molecular, & Optical Physics (DAMOPC). He played a leading role in the effort that resulted in the University of Calgary joining the TRIUMF Consortium as an Associate Member, chaired the Local Organizing Committee of the 2007 Joint APS/CAP DAMOP Meeting held in Calgary, and is co-chairing the 2012 CAP Congress LOC.

PERSONAL AND CONTACT INFORMATION:

Contact Information:

University Address:
University of Calgary
Department of Physics and Astronomy
2500 University Drive NW
Calgary, Alberta, T2N 1N4
Canada

Phone: (403) 220-5407
Fax: (403) 210-8974

e-mail: rthompso@ucalgary.ca

GENERAL ACADEMIC AND PROFESSIONAL INFORMATION

PROFESSIONAL CERTIFICATION

P.Phys. (Professional Physicist), effective from Nov. 20, 2001, Grantor: Canadian Association of Physicists

EDUCATIONAL BACKGROUND:

University	Department	Degree	Date of Completion
University of Toronto	Physics	Ph.D.	June, 1994
University of British Columbia	Physics	B.Sc.(Honours)	May, 1987

HONOURS AND AWARDS [name, location, date]:

Professional Awards and Recognition (*Post-PhD*)

International Research Team Recognition
Physics World #1 Breakthrough of 2010, Co-awarded to the ALPHA Collaboration (joint with ASACUSA), Awarded by the Institute of Physics, Dec. 2010. (http://physicsworld.com/cws/article/news/44618)

National Award
CAP Medal for Excellence in Teaching, Awarded by the Canadian Association of Physicists, June 2007.

Institutional Awards
Member, University of Calgary, Great Teachers Web-site (greatteachers.ucalgary.ca), August 2004- present.
University of Calgary Student Union Teaching Excellence Award recipient, 2003-04
Faculty Excellence in Teaching Award, Faculty of Science, University of Calgary, 2003.
Nominated for 3M National Teaching Fellowship, 2006-08.
Nominated for a Student Union Teaching Award, University of Calgary, 2002-03.

Other Awards
High Table Guest, Massey College, Founders' Gaudy, 1994, 2000.

Student and PDF Awards

National Awards
NSERC 1967 Science and Engineering Scholarship, University of Toronto, 1987-88 through 1990-91.
NSERC Undergraduate Student Research Award, University of British Columbia, 1985, 1986, 1987.

Provincial/State Awards
Robert A. Welch Foundation Postdoctoral Fellowship, Department of Chemistry, Rice University, 1997-98.
Government of British Columbia University Entrance Scholarship, University of British Columbia, 1983-84.

Institutional Awards
Walter C. Sumner Memorial Fellowship, University of Toronto, 1993.
University of Toronto Open Doctoral Fellowship, University of Toronto, 1991-92.
Graduating Class Valedictorian, Faculty of Science, University of British Columbia, Class of 1987.
Dean's List, Faculty of Science, University of British Columbia, Graduating Class of 1987.
Vancouver Sun Special Scholarship for Sun Carriers, UBC, 1983-84, 1984-85, 1985-86, 1986-87.
Joseph P. Ruffel Scholarship in Science, University of British Columbia, 1986-87.
E.H. Archibald Scholarship, University of British Columbia, 1985-86.
Charles A and Jane C.A. Banks Foundation Scholarship, University of British Columbia, 1984-85, 1986-87.
University of British Columbia Scholarship Fund, University of British Columbia, 1984-85.
Percy Walter Perris Scholarship, University of British Columbia, 1983-84.

Departmental Awards
3M Top-up Award, University of Toronto, 1991-92.
Van Kranendonk Teaching Assistant Award, University of Toronto, 1987-88.
McLennan Top-up Award, University of Toronto, 1987-88.
Arthur Crooker Prize, University of British Columbia, 1986-87.
Gordon Merrit Shrum Memorial Scholarship, University of British Columbia, 1986-87.
W.H. MacInnes Scholarship in Physics and Mathematics, University of British Columbia, 1985-86.

Other Awards
Honorary Southam Fellowship, Massey College, 1991-92.
Junior Fellowship, Massey College, 1987-88, 1988-89, 1989-90, 1990-91, 1991-92.

RESEARCH

SCIENTIFIC RESEARCH INTERESTS AND TECHNICAL EXPERTISE:

My group is interested in low density and/or low temperature studies of atoms, molecules, & exotic species. At low densities and low temperatures processes can be observed at the single particle level, minimizing or removing collective and/or statistical averaging effects. Examples of exotic species include antimatter, fullerenes, and rare isotopic species. These studies carried out in ion traps, neutral atom traps, or supersonic jets, can look at ion-neutral, ion-ion, ion-photon, and neutral-photon interactions. Recent past, present, or near-future projects include trapping, cooling of ions (laser, evaporative, sympathetic), mass spectrometry of trapped ions, ion processes in conventional and novel trapping field geometries, formation, trapping, and analysis of anti-hydrogen, and studies of stable and unstable ionic isotopes. Technically, this work involves Excimer, argon-ion, and dye (nanosecond-pulsed and cw) lasers, visible and VUV spectrometers, photomultiplier, electron multipliers, and microchannel plate detectors, scintillator and silicon particle detectors, and HV, VHV, and UHV vacuum systems, as well as the extensive experimental infrastructure available at the Anti-proton Decelerator (AD) facility at CERN and at TRIUMF. Although initially focused on experimental work, my group has broadened to include computational and theoretical work in trapped ion physics. My group is extensively involved in collaborative research groups in anti-matter physics (ALPHA, the Anti-hydrogen Laser PHysics Apparatus collaboration, based at CERN) and the physics of ice-metal interfaces at the University of Calgary involving members of the Faculties of Engineering and Kinesiology. To a lesser extent, I was previously involved in collinear spectroscopy of unstable isotopic species (work done at TRIUMF) and ion trapping of unstable isotopic species with the TITAN facility (TRIUMF Ion Trap for Atomic and Nuclear science), but my work in these areas is not currently active..

RESEARCH AFFILIATIONS:

Faculty Member, Quantum Optics Research Group, Dept. of Physics & Astronomy, University of Calgary.
Affiliated Faculty Member, Institute for Quantum Information Science, University of Calgary.
Registered User, TRIUMF National Laboratory, Vancouver BC, Canada.
Registered User, CERN, The European Organization for Nuclear Research
Member, Anti-hydrogen Laser PHysics Apparatus (ALPHA) Collaboration
Team Leader, University of Calgary ALPHA Team
Member, TRIUMF Ion Trap for Atomic and Nuclear science (TITAN) Collaboration (*not currently active*)

RESEARCH AND RELATED GRANTS AWARDED (Principle Investigator):

Title **Principal Investigator(s)**	**Granting Agency** **Program**	**Years of Tenure** **Initial**	 **Final**
Head's Supplemental Research Grant	University of Calgary	2010-11	2014-15
Implementation of Labatorials in the Physics 259 Component of the Engineering Common First-Year Curriculum at the University of Calgary R.I. Thompson, M.E. Potter, and W.J.F. Wilson	Schulich School of Engineering Faculty of Science Dept. of Physics and Astronomy	2010-2011	2011-2012
Implementation of Labatorials in First Year Physics Courses at the University of Calgary R.I. Thompson, R.B. Hicks, and A. Louro	Teaching and Learning Fund University of Calgary Faculty of Science University of Calgary	2008-2009	2009-2010

RESEARCH GRANTS AWARDED (Principle Investigator) (*cont.*):

Title **Principal Investigator(s)**	**Granting Agency** **Program**	**Years of Tenure** **Initial**	 **Final**
Ion Trapping of Atoms, Molecules And Exotic Species R.I. Thompson	NSERC, Canada Discovery Grant, Individual	2008- 2009	2012- 2013
Implementation of Labatorials in 1ST-year Physics Courses in the Dept.of Physics and Astronomy R.I. Thompson	Teaching and Learning Centre University of Calgary Inquiry and Blended Learning Course Development and Enhancement Project	2007- 2008	2007- 2008
Low Density Studies of Atoms and Molecules in the Gas Phase R.I. Thompson	NSERC, Canada Discovery Grant, Individual	2003- 2004	2007- 2008
Physics Educators' Day with Nobel Laureate Carl Wieman, University of Calgary, June 5, 2007 R.I. Thompson	Special Projects Grant Faculty of Science Dept. of Physics & Astronomy Teaching and Learning Centre University of Calgary	2007	2007-
Low Density Studies of Atoms and Molecules in the Gas Phase R.I. Thompson	NSERC, Canada Research Grants, Individual	1999- 2000	2002- 2003
Nonlinear Optical Properties of Laser-Cooled Trapped Neutral Atoms R.I. Thompson	University of Calgary University Research Grants Committee Starter Grant	2000	2001
Stabilized Laser System Upgrade R.I. Thompson, N.Moazzen-Ahmadi	NSERC, Canada Equipment Grant	2000	2000
Laser Cooling and Imaging of Extremely Low Density Ionic Atoms and Molecules R.I. Thompson, N. Moazzen-Ahmadi, D. Cramb, D. Irvine-Halliday	Total Project Canadian Foundation for Innovation New Opportunities Program Intellectual Infrastructure Partnership Program, Province of Alberta Major Equipment and Installations Dept. of Physics and Astronomy Faculty of Science Thompson Start-up Funds	2000	2000
Temporary Operating Grant R.I. Thompson	University of Calgary, D. of Physics and Astronomy, Faculty of Science	1999	1999
Start-up Equipment Grant R.I. Thompson	University of Calgary Total Funding Research Enhancement Envelope Faculty of Science, Dept. of Physics and Astronomy	1998	2001

RESEARCH GRANTS AWARDED (Co-Applicant):

Co-Investigator, "*Fundamental symmetry tests with trapped antihydrogen: Project ALPHA at CERN/AD*", NSERC Subatomic Physics – Project Grant (Principle Applicant M. Fujiwara, 6 co-applicants).

Co-Investigator, "*Microwave amplifier for hyperfine spectroscopy of antihydrogen*", NSERC Subatomic Physics – Research Tools and Instruments (Principle Applicant M. Hayden, 6 co-applicants).

Co-Investigator, "*Voltage control system upgrade for ALPHA trap*", NSERC Subatomic Physics - Research Tools and Instruments (Principle Applicant M. Fujiwara, 6 co-applicants).

Co-Investigator, "*Microwave Synthesizer for Hyperfine Spectroscopy of Antihydrogen*", NSERC Subatomic Physics - Research Tools and Instruments (Principle Applicant M. Hayden, 6 co-applicants).

Co-Investigator, "*Fundamental Symmetry Tests with Trapped Antihydrogen: ALPHA/AD-5 at CERN*", NSERC Sub-Atomic Physics Project Grant (Principle Applicant M. Fujiwara, 7 Co-applicants).

Co-Applicant, "*Enhancing Student Learning in Science Through Faculty Engagement*", University of Calgary Teaching and Learning Fund Committee (TLFC) Grant Program (Principle Applicant: Cindy Graham).

Co-Investigator, " *Casting light on antimatter with project ALPHA (Antihydrogen Laser PHysics Apparatus)*", NSERC Special Research Opportunities Grant (Principle Investigator: M. Fujiwara, 9 Co-Investigators), funded by NSERC.

Co-Investigator, "*TITAN: Triumf Ion Trap for Atomic and Nuclear science*", NSERC Sub-Atomic Physics: Research Tools and Instruments Grant (Principle Investigator: J. Dilling, 10 Co-Investigators), funded by NSERC.

Co-Investigator, "*Integrating research in osteoarthritis: From the bedside to the bench and back again"* Application to CFI Innovation Fund (Principle Investigator: D. Hart, 9 co-investigators), 2001-02.

Co-Investigator, "*Integrating research in osteoarthritis: From the bedside to the bench and back again"* Application to Alberta Government (Principle Investigator: D. Hart, 9 Co-investigators), 2004.

SCIENTIFIC CAREER EXPERIENCE:

Position Title Associate Professor; Assistant Professor
Institution Department of Physics and Astronomy, University of Calgary, Calgary, Alberta, Canada
Dates: July 1, 2004 to the present; September 1998 to June 30, 2004

Position Title Post-Doctoral Research Associate
Institution: Department of Chemistry, Rice University, Houston, Texas, USA
Supervisor: Prof. Robert F. Curl
Dates: September 1997 to September 1998

Position Title Staff Scientist (2 year position)
Institution: Max-Planck-Institut für Quantenoptik MPQ), Garching bei München, Germany
Supervisor: Prof. Dr. Herbert Walther
Dates: March 1995 to August 1997

Position Title Post-Doctoral Researcher
Institution: Department of Physics, University of Toronto, Toronto, Ontario, Canada
Supervisor: Prof. Boris P. Stoicheff
Dates: July 1994 to February 1995

Position Title Graduate Student
Institution: Department of Physics, University of Toronto, Toronto, Ontario, Canada
Supervisor: Prof. Boris P. Stoicheff
Dates: September 1987 to June 1994
(note: entered M.Sc. program in Sept. 1987, but transferred into the Ph.D. program in the summer of 1988)
Thesis Title: "Four-Wave Sum-Mixing with Induced Transparency in Atomic Hydrogen"

Position Title: Visiting Scientist
Institution: Institute for Laser Science, University of Electro-Communications, Chofu, Tokyo, Japan.
Supervisor: Prof. Kohzo Hakuta
Dates: April 1993

Position Title: 4th-Year Undergraduate Student Researcher (B.Sc. Honours Thesis research)
Institution: Department of Physics, University of British Columbia, Vancouver, B.C., Canada
Supervisor: Prof. Irving Ozier
Dates: September 1986 to July 1987
Thesis: Preliminary analysis of the v_{12}=0-1 vibration-rotation-torsion transition infrared spectrum of CH_3CD_3

Position Title: 3rd-Year Undergraduate Student Researcher
Institution: Department of Physics, University of British Columbia, Vancouver, B.C., Canada
Supervisor: Prof. Walter N. Hardy
Dates: January 1986-August 1986

Position Title: Undergraduate Summer Research Assistant
Institution: Department of Physics, University of British Columbia, Vancouver, B.C., Canada
Supervisor: Prof. R. R. Haering
Dates: Summer 1984, Summer 1985 (Part time during winter 1984-85 and 1985-86)

LIST OF PUBLICATIONS:

Written Contributions: Submitted, Re-submitted, Under Revision

REFEREED JOURNAL CONTRIBUTIONS SUBMITTED:

6. G.B. Andresen, M.D. Ashkezari, W. Bertsche, P.D. Bowe, E. Butler, C.L. Cesar, S. Chapman, M. Charlton, A. Deller, S. Eriksson, J. Fajans, T. Friesen, M.C. Fujiwara, D.R. Gill, A. Gutierrez, J.S. Hangst, W.N. Hardy, M.E. Hayden, R. S. Hayano, A.J. Humphries, R. Hydomako, S. Jonsell, L. V. Jørgensen, L. Kurchaninov, N. Madsen, S. Menary, P. Nolan, K. Olchanski, A. Olin, A. Povilus, P. Pusa, E. Sarid, S. Seif el Nasr, D.M. Silveira, C. So, J.W. Storey, R.I. Thompson, D.P. van der Werf, Y. Yamazaki, "*Antihydrogen Annihilation Reconstruction with the ALPHA Silicon Detector*", approved through CERN review process and submitted to Nuclear Instrumentation and Methods A, July 2011.

REFEREED CONFERENCE PROCEEDINGS CONTRIBUTIONS SUBMITTED:

5. R. Hydomako, G. B. Andresen, M.D. Ashkezari, M. Baquero-Ruiz, W. Bertsche, E. Butler, P. D. Bowe, C. L. Cesar, S. Chapman, M. Charlton, J. Fajans, T. Friesen, M. C. Fujiwara, D.R. Gill, J. S. Hangst, W. N. Hardy, R. S. Hayano, M. E. Hayden, A. J. Humphries, S. Jonsell, L. Kurchaninov, N. Madsen, S. Menary, P. Nolan, K. Olchanski, A. Olin, A. Povilus, P. Pusa, F. Robicheaux, E. Sarid, D. M. Silveira, C. So, J. W. Storey, R. I. Thompson, D. P. van der Werf, J. S. Wurtele, Y. Yamazaki (ALPHA Collaboration), "*Antihydrogen Detection in ALPHA*", Submitted to Hyperfine Interactions (Proceedings of LEAP 2011), June 2011.

4. T. Friesen, G. B. Andresen, M. D. Ashkezari, M. Baquero-Ruiz, W. Bertsche, P. D. Bowe, E. Butler, C.L. Cesar, S. Chapman, M. Charlton, J. Fajans, M. C. Fujiwara, D. R. Gill, J.S. Hangst, W. N. Hardy, R. S. Hayano, M. E. Hayden, A. J. Humphries, R. Hydomako, S. Jonsell, L. Kurchaninov, N. Madsen, S. Menary, P. Nolan, K. Olchanski, A. Olin, A. Povilus, P. Pusa, F. Robicheaux, E. Sarid, D. M. Silveira, C. So, J. W. Storey, R. I. Thompson, D. P. van der Werf, J. S. Wurtele, Y. Yamazaki, (ALPHA Collaboration), "*Microwave-plasma interactions studied via mode diagnostics in ALPHA*", Submitted to Hyperfine Interactions (Proceedings of LEAP 2011), June 2011.

3. M.D. Ashkezari, G.B. Andresen, M. Baquero-Ruiz, W. Bertsche, P.D. Bowe, E. Butler, C.L. Cesar, S. Chapman, M. Charlton, A. Deller, S. Eriksson, J. Fajans, T. Friesen, M.C. Fujiwara, D.R. Gill, A. Gutierrez, J.S. Hangst, W.N. Hardy, M.E. Hayden, A.J. Humphries, R. Hydomako, M. J. Jenkins, S. Jonsell, L.V. Jörgensen, L. Kurchaninov, N. Madsen, S. Menary, P. Nolan, K. Olchanski, A. Olin, A. Povilus, P. Pusa, F. Robicheaux, E. Sarid, S. Seif el Nasr, D.M. Silveira, D. L. Smith, C. So, J.W. Storey, R.I. Thompson, D.P. van der Werf, J.S. Wurtele, Y. Yamazaki (ALPHA Collaboration), "*Progress Toward Microwave Spectroscopy of Trapped Antihydrogen*", Submitted to Hyperfine Interactions (Proceedings of LEAP 2011), June 2011.

2. E. Butler, G.B. Andresen, M.D. Ashkezari, M. Baquero-Ruiz,·W. Bertsche, P.D. Bowe, C.L. Cesar,·S. Chapman, M. Charlton,·A. Deller, S. Eriksson, J. Fajans,·T. Friesen, M.C. Fujiwara, D.R. Gill,·A.Gutierrez, J.S. Hangst, W.N. Hardy,·M.E. Hayden, A.J. Humphries,·R. Hydomako, M.J. Jenkins,·S. Jonsell, L.V. Jørgensen, S.L. Kemp,·L. Kurchaninov, N. Madsen, S. Menary,·P. Nolan, K. Olchanski, A. Olin,·A.Povilus, P. Pusa, C.Ø. Rasmussen,·F. Robicheaux, E. Sarid, S. Seif el Nasr,·D.M. Silveira, C. So, J.W. Storey, R.I. Thompson, D.P. van der Werf,·J.S. Wurtele, Y. Yamazaki (ALPHA Collaboration), "*Trapped Antihydrogen*", Submitted to Hyperfine Interactions (Proceedings of LEAP 2011), July 2011.

1. W. Bertsche, G.B. Andresen, M.D. Ashkezari, M. Baquero-Ruiz, P.D. Bowe, P.T. Carpenter, E.Butler, C.L. Cesar, S. Chapman, M. Charlton, S. Eriksson, J. Fajans, T. Friesen, M.C. Fujiwara, D.R. Gill, A. Gutierrez, J.S. Hangst, W.N. Hardy, R.S. Hayano, M.E. Hayden, A.J. Humphries, J.L. Hurt, R. Hydomako, S. Jonsell, L. Kurchaninov, N. Madsen, S. Menary, P. Nolan, K. Olchanski, A. Olin, A. Povilus, P. Pusa, F. Robicheaux, E. Sarid, D.M. Silveira, C. So, J.W.,Storey, R. I. Thompson, D.P. van der Werf, J.S. Wurtele, Y. Yamazaki(ALPHA Collaboration) "*Antihydrogen formation by autoresonant excitationof antiproton plasmas*", Submitted to Hyperfine Interactions (Proceedings of LEAP 2011), July 2011.

Written Contributions: Published or In Press

REFEREED JOURNAL AND REFEREED PROCEEDINGS CONTRIBUTIONS:

47. G. B. Andresen, M. D. Ashkezari, M. Baquero-Ruiz,W. Bertsche, P. D. Bowe, E. Butler, C. L. Cesar, M. Charlton, A. Deller, S. Eriksson, J. Fajans, T. Friesen, M. C. Fujiwara, D. R. Gill, A. Gutierrez, J. S. Hangst, W. N. Hardy, R. S. Hayano, M. E. Hayden, A. J. Humphries, R. Hydomako, S. Jonsell, S. L. Kemp, L. Kurchaninov, N. Madsen, S. Menary, P. Nolan, K. Olchanski, A. Olin, P. Pusa, C. Ø. Rasmussen, F. Robicheaux, E. Sarid, D. M. Silveira, C. So, J.W. Storey, R. I. Thompson, D. P. van derWerf, J. S.Wurtele, and Y. Yamazaki (The ALPHA Collaboration), "*Confinement of antihydrogen for 1,000 seconds*", Nature Physics **7**, pp.558-564 (2011).

46. L. Poirier, E.P. Lozowski, S. Maw, D.J. Stefanyshyn, R.I. Thompson, "*Getting a grip on ice friction*", Proceedings of the 21st International Offshore Polar Engineering Conference. Maui, HI. v.1, 1071-7. (2011).

45. Butler, E., Andresen, G. B., Ashkezari, M. D., Baquero-Ruiz, M., Bertsche, W., Bowe, P. D., Bray, C. C., Cesar, C. L., Chapman, S., Charlton, M., Fajans, J., Friesen, T., Fujiwara, M. C., Gill, D. R., Hangst, J. S., Hardy, W. N., Hayano, R. S., Hayden, M. E., Humphries, A. J., Hydomako, R., Jonsell, S., Kurchaninov, L., Lambo, R., Madsen, N., Menary, S., Nolan, P., Olchanski, K., Olin, A., Povilus, A., Pusa, P., Robicheaux, F., Sarid, E., Silveira, D. M., So, C., Storey, J. W., Thompson, R. I., van der Werf, D. P., Wilding, D., Wurtele, J. S., Yamazaki, Y., "*Towards antihydrogen trapping and spectroscopy at ALPHA*", published online in the Proceedings of TCP 2010, Hyperfine Interactions, 10 pages (2011).

44. G.B. Andresen, M.D. Ashkezari, M. Baquero-Ruiz, W. Bertsche, P.D. Bowe, E. Butler, C.L. Cesar, S. Chapman, M. Charlton, A. Deller, S. Eriksson, J. Fajans, T. Friesen, M.C. Fujiwara, D.R. Gill, A. Gutierrez, J.S. Hangst, W.N. Hardy, M.E. Hayden, A.J. Humphries, R. Hydomako, S. Jonsell, N. Madsen, S. Menary, P. Nolan, A. Olin, A. Povilus, P. Pusa, F. Robicheaux, E. Sarid, D.M. Silveira, C. So, J.W. Storey, R.I. Thompson, D.P. van der Werf, J.S. Wurtele, and Y. Yamazaki (ALPHA Collaboration), "*Centrifugal separation and equilibration dynamics in an electron-antiproton plasma*", Physics Review Letters **106**, 145001, 5 pages, (2011).

43. Poirier, L., Lozowski, E. P., Maw, S., Stefanyshyn, D. J., and Thompson, R. I., "*Experimental analysis of ice friction in the sport of bobsleigh"*. SPEN93 Accepted with minor revisions Sports Engineering, Apr. 8, 2011.

42. D P van der Werf, G B Andresen, M D Ashkezari, M Baquero-Ruiz, W Bertsche, P D Bowe, C C Bray, E Butler, C L Cesar, S Chapman, M Charlton, J Fajans, T Friesen, M C Fujiwara, D R Gill, J S Hangst, W N Hardy, R S Hayano, M E Hayden, A J Humphries, R Hydomako, S Jonsell, L V Jørgensen, L Kurchaninov, R Lambo, N Madsen, S Menary, P Nolan, K Olchanski, A Olin, A Povilus, P Pusa, F Robicheaux, E Sarid, D M Silveira, C So, J W Storey, R I Thompson, J S Wurtele and Y Yamazaki (ALPHA Collaboration), "*Antimatter transport processes"*, Proceedings of the 25th Summer School and International Symposium on the Physics of Ionized Gases – SPIG 2010, Journal of Physics: Conference Series 257 (2010) 012004 (11 pages). (Peer reviewed)

41. G.B. Andresen, M.D. Ashkezari, M. Baquero-Ruiz, W. Bertsche, P.D. Bowe, E. Butler, P.T. Carpenter, C.L. Cesar, S. Chapman, M. Charlton, J. Fajans, T. Friesen, M.C. Fujiwara, D.R. Gill, J.S. Hangst, W.N. Hardy, M.E. Hayden, A.J. Humphries, R. Hydomako, J. L. Hurt, S. Jonsell, N. Madsen, S. Menary, P. Nolan, K. Olchanski, A. Olin, A. Povilus, P. Pusa, F. Robicheaux, E. Sarid, D.M. Silveira, C. So, J.W. Storey, R.I. Thompson, D.P. van der Werf, J.S. Wurtele, and Y. Yamazaki (ALPHA Collaboration), "*Autoresonant Excitation of Antiproton Plasmas*", Physical Review Letters **106**, 025002-5pages (2011).

40. L. Poirier, E.P. Lozowski, R.I. Thompson, "*Ice Hardness in Winter Sports*", Cold Regions Science and Technology, **67**, pp.129-134.

39. G.B. Andresen, M.D. Ashkezari, M. Baquero-Ruiz, W. Bertsche, P.D. Bowe, E. Butler, C.L. Cesar, S. Chapman, M. Charlton, A. Deller, S. Eriksson, J. Fajans, **T. Friesen**, M.C. Fujiwara, D.R. Gill, A. Gutierrez, J.S. Hangst, W.N. Hardy, M.E. Hayden, A.J. Humphries, **R. Hydomako**, MJJ, S. Jonsell, L.V. Jørgensen, L. Kurchaninov, N. Madsen, S. Menary, P. Nolan, K. Olchanski, A. Olin, A. Povilus, P. Pusa, F. Robicheaux, E. Sarid, SSN, D.M. Silveira, C. So, J.W. Storey, R.I. Thompson, D.P. van der Werf, J.S. Wurtele, Y. Yamazaki (ALPHA Collaboration),[2] "*Trapped Antihydrogen*", Nature, **468**, 673-676 (2010).

REFEREED JOURNAL AND PROCEEDINGS CONTRIBUTIONS (*continued*):

38. G.B. Andresen, M.D. Ashkezari, M. Baquero-Ruiz, W. Bertsche, P.D. Bowe, C. Bray, E. Butler, C.L. Cesar, S. Chapman, M. Charlton, J. Fajans, T. Friesen, M.C. Fujiwara, D.R. Gill, J.S. Hangst, W.N. Hardy, RSH, M.E. Hayden, A.J. Humphries, R. Hydomako, S. Jonsell, L.V. Jørgensen, L. Kurchaninov, R. Lambo, N. Madsen, S. Menary, P. Nolan, K. Olchanski, A. Olin, A. Povilus, P. Pusa, F. Robicheaux, E. Sarid, S. Seif El Nasr, D.M. Silveira, C. So, J.W. Storey, R.I. Thompson, D.P. van der Werf, J.S. Wurtele, and Y. Yamazaki. "*Search for Trapped Antihydrogen*", Physics Letters B **695**, 95-104 (2011).

37. J.M.K.C.Donev, W.J.F.Wilson, D.Ahrensmeier, R.B.Stafford, R.I.Thompson, "*Using Software to Review Mathematics for Students in Introductory Physics*", Physics in Canada **66**(3), pp.174-175 (2010).

36. Z. Abusara, R. Seerattan, A. Leumann, R. Thompson, and W. Herzog, "*A Novel Method for Determining Articular Cartilage Chondrocyte Mechanics in vivo*", Journal of Biomechanics **44**(5), pp.930-934 (2011).

35. N. Madsen, G.B. Andresen, M.D. Ashkezari, M. Baquero-Ruiz, W. Bertsche, P.D. Bowe, C. Bray, E. Butler, C.L. Cesar, S. Chapman, M. Charlton, J. Fajans, T. Friesen, M.C. Fujiwara, D.R. Gill, J.S. Hangst, W.N. Hardy, M.E. Hayden, A.J. Humphries, R. Hydomako, S. Jonsell, L.V. Jørgensen, L. Kurchaninov, R. Lambo, S. Menary, P. Nolan, K. Olchanski, A. Olin, A. Povilus, P. Pusa, F. Robicheaux, E. Sarid, S. Seif El Nasr, D.M. Silveira, C. So, J.W. Storey, R.I. Thompson, D.P. van der Werf, J.S. Wurtele, and Y. Yamazaki. "*Search for trapped antihydrogen*", Canadian Journal of Physics **89**, pp. 7–16 (2011) (Refereed Conference Proceedings of the International Conference on Precision Physics of Simple Atomic Systems) (NSERC funded and Peer Reviewed)

34. G.B. Andresen, M.D. Ashkezari, M. Baquero-Ruiz, W. Bertsche, P.D. Bowe, E. Butler,C.L. Cesar, S. Chapman, M. Charlton, J. Fajans, T. Friesen, M.C. Fujiwara, D.R. Gill,J.S. Hangst, W.N. Hardy, R.S. Hayano, M.E. Hayden, A. Humphries, R. Hydomako, L.V.Jorgensen, L. Kurchaninov, R. Lambo, N. Madsen, P. Nolan, K. Olchanski, A. Olin, A.Povilus, P. Pusa, F. Robicheaux, E. Sarid, S. Seif El Nasr, D.M. Silveira, C. So, J.W.Storey, R.I. Thompson, D.P. van der Werf, D. Wilding, J.S. Wurtele, and Y. Yamazaki (ALPHA Collaboration), "*Evaporative cooling of antiprotons for antihydrogen production and trapping*", Physical Review Letters **105**, 013003, 5 pages, (2010).

33. Randall B. Stafford, M. Louis Lazon, Mohammad Sabati, Richard Frayne, and Robert I. Thompson, "*A tutorial on the precessional behaviour of hydrogen nuclei in external magnetic fields*", Canadian Journal of Physics **88,** pp.465-477, (2010).

32. G.B. Andresen, W. Bertsche, P.D. Bowe, C. Bray, E. Butler, C.L. Cesar, S. Chapman, M. Charlton, J. Fajans, M.C. Fujiwara, D.R. Gill, J.S. Hangst, W.N. Hardy, R.S. Hayano, M.E. Hayden, A.J. Humphries, R. Hydomako, L.V. Jørgensen, S.J. Kerrigan, L. Kurchaninov, R. Lambo, N. Madsen, P. Nolan, K. Olchanski, A. Olin, A. Povilus, P. Pusa, F. Robicheaux, E. Sari, S. Seif El Nasr, D.M. Silveira, J.W. Storey, R.I. Thompson, D.P. van der Werf, J.S. Wurtele, Y. Yamazaki, "*Antihydrogen Formation Dynamics in an Anti-atom Trap*", Physics Letters B **685**, pp. 141–145, (2010).

31. D. Ahrensmeier, J.M.K.C. Donev, R.B. Hicks, A.A. Louro, L. Sangalli, R.B. Stafford, and R.I. Thompson, "*Labatorials at the University of Calgary: In pursuit of effective small group instruction within large registration physics service courses*", Physics in Canada **65**(4), pp.214-216, (2009).

30. ALPHA Collaboration, G. B. Andresen, W. Bertsche, P. D. Bowe, C. C. Bray, E. Butler, C. L. Cesar, S. Chapman, M. Charlton, J. Fajans, M. C. Fujiwara, D. R. Gill, J. S. Hangst, W. N. Hardy, R. S. Hayano, M. E. Hayden, A. J. Humphries, R. Hydomako, L. V. Jørgensen, S. J. Kerrigan, L. Kurchaninov, R. Lambo, N. Madsen, P. Nolan, K. Olchanski, A. Olin, A. P. Povilus, P. Pusa, E. Sarid, S. Seif El Nasr, D. M. Silveira, J. W. Storey, R. I. Thompson, D. P. van der Werf, Y. Yamazaki, "*Antiproton, positron, and electron imaging with a microchannel plate/phosphor detector*", Review of Scientific Instruments **80**, 123701 (2009).

REFEREED JOURNAL AND PROCEEDINGS CONTRIBUTIONS (*continued*):

29. G.B. Andresen, W. Bertsche, C.C. Bray, E. Butler, C.L. Cesar, S. Chapman, M. Charlton, J. Fajans, M.C. Fujiwara, D.R. Gill, J.S. Hangst, W.N. Hardy, R.S. Hayano, M.E. Hayden, A.J. Humphries, R. Hydomako, L.V. Jorgensen, S.J. Kerrigan, J. Keller, L. Kurchaninov, R. Lambo, N. Madsen, P. Nolan, K. Olchanski, A. Olin, A. Povilus, P. Pusa, F. Robicheaux, E. Sarid, S. Seif El Nasr, D.M. Silveira, J.W. Storey, R.I. Thompson, D.P. van der Werf, J.S. Wurtele, and Y. Yamazaki, "*Magnetic multipole induced zero-rotation frequency bounce-resonant loss in a Penning-Malmberg trap used for antihydrogen trapping"*, Physics of Plasmas **16**, pp. 100702, 4 pages, (2009).

28. T. Antimirova, P. Goldman, N. Lasry, M. Milner-Bolotin, R. Thompson, "*Recent Developments in Physics Education in Canada*", Physics in Canada **65**(1), pp.19-22, (2009).

27. Y. J. Shi, W. Al-Basheer, R. I. Thompson, "*Two-photon resonant second harmonic generation in Atomic Xeon*", Journal of Chemical Physics, **130**, 094305 (2009).

26. C. L. Cesar, G. B. Andresen, W. Bertsche, P.D. Bowe, C.C. Bray, E. Butler, S. Chapman, M. Charlton, J. Fajans, M.C. Fujiwara, R. Funakoshi, D.R. Gill, J.S. Hangst, W.N. Hardy, R.S. Hayano , M.E. Hayden, A.J. Humphries, R. Hydomako, M.J. Jenkins, L.V. Jørgensen, L. Kurchaninov, R. Lambo, N. Madsen, P. Nolan , K. Olchanski, A. Olin, R. D. Page , A. Povilus, P. Pusa , F. Robicheaux, E. Sarid, S. Seif El Nasr, D.M. Silveira, J.W. Storey, R.I. Thompson, D.P. van der Werf, J.S. Wurtele, and Y. Yamazaki (ALPHA Collaboration), "Antihydrogen Physics at ALPHA/CERN", 9 pages, Canadian Journal of Physics **87**(7): pp. 791–797, (2009).

25. L. Poirier, S. Maw, D. Stefanyshyn, R.I. Thompson, "*Optimization of Handheld Gauge Sizes for Rocker Measurements of Skate Blades and Bobsleigh Runners*", Sports Engineering **11**(4), pp. 201-206 (2009).

24. M. Dehghany, Mahin Afshari, R.I. Thompson, N. Moazzen-Ahmadi, and A.R.W. McKellar, "*Infrared spectra of the polar and nonpolar isomers of N_2O dimer in the 1280 cm^{-1} region of the ν_3 fundamental*", Journal of Molecular Spectroscopy **252**, pp. 1-4 (2008).

23. G. Andresen, W. Bertsche, P.D. Bowe, C.C. Bray, E. Butler, C.L. Cesar, S. Chapman, M. Charlton, J. Fajans, M.C. Fujiwara, R. Funakoshi, D.R. Gill, J.S. Hangst, W.N. Hardy, R.S. Hayano, M. Hayden, R. Hydomako, M.J. Jenkins, L.V. Jörgensen, L. Kurchaninov, N. Madsen, P. Nolan, K. Olchanski, A. Olin, A. Povilus, P. Pusa, F. Robicheaux, E. Sarid, S. Seif El Nasr, D.M. Silveira, J.W. Storey, R.I. Thompson, D.P. van der Werf, J.S. Wurtele, and Y. Yamazaki (ALPHA Collaboration), "*Compression of Antiproton Clouds for Antihydrogen Trapping*", Phys. Rev. Lett. **100**, 203401-1 to 203401-5 (2008).

22. G.B. Andresen, W. Bertsche, P.D. Bowe, C.C. Bray, E. Butler, C.L. Cesar, S. Chapman, M. Charlton, J. Fajans, M.C. Fujiwara, R. Funakoshi, D.R. Gill, J.S. Hangst, W.N. Hardy, R.S. Hayano, M.E. Hayden, A.J. Humphries, R. Hydomako, M.J. Jenkins, L.V. Jörgensen, L. Kurchaninov, R. Lambo, N. Madsen, P. Nolan, K. Olchanski, A. Olin, R.D. Page, A. Povilus, P. Pusa, F. Robicheaux, E. Sarid, S. Seif El Nasr, D.M. Silveira, J.W. Storey, R.I. Thompson, D.P. van der Werf, J.S. Wurtele, and Y. Yamazaki, "*A novel antiproton radial diagnostic based on octupole induced ballistic loss*", Physics of Plasmas **15**, 032107-1 to 032107-8 (2008).

21. L. V. Jørgensen, G. Andresen, W. Bertsche, A. Boston, P. D. Bowe, C. L. Cesar, S. Chapman, M. Charlton, J. Fajans, M. C. Fujiwara, R. Funakoshi, D. R. Gill, J. S. Hangst, R. S. Hayano, R. Hydomako, M. J. Jenkins, L. Kurchaninov, N. Madsen, P. Nolan, K. Olchanski, A. Olin, R. D. Page, A. Povilus, F. Robicheaux, E. Sarid, D. M. Silveira, J. W. Storey, R. I. Thompson, D. P. van der Werf, J. S. Wurtele, and Y. Yamazaki, "*Towards trapped antihydrogen*", Nucl. Instr. Meth. Phys. Res. **B 266**, 357 (2008).

20. G B Andresen,W Bertsche, A Boston, P D Bowe, C L Cesar, S Chapman, M Charlton, M Chartier, A Deutsch, J Fajans, M C Fujiwara, R Funakoshi, D R Gill, K Gomberoff, J S Hangst, R S Hayano, R

REFEREED JOURNAL AND PROCEEDINGS CONTRIBUTIONS (*continued*):

Hydomako, M J Jenkins, L V Jørgensen, L Kurchaninov, N Madsen, P Nolan, K Olchanski, A Olin, R D Page, A Povilus, F Robicheaux, E Sarid, D M Silveira, J W Storey, R I Thompson, D P van derWerf, J S Wurtele and Y Yamazaki (The ALPHA Collaboration), "*Production of antihydrogen at reduced magnetic field for anti-atom trapping*", Journal of Physics B: Atomic, Molecular and Optical Physics **41** (Fast Track Communications), page 011001 (5pp), 2008.

19. M. C. Fujiwara , G. Andresen, W. Bertsche, A. Boston, P. D. Bowe, C. L. Cesar, S. Chapman, M. Charlton, M. Chartier, A. Deutsch, J. Fajans, R. Funakoshi, D. R. Gill, K. Gomberoff, J. S. Hangst, W. N. Hardy, R. S. Hayano, R. Hydomako, M. J. Jenkins, L. V. Jørgensen, L. Kurchaninov, N. Madsen, P. Nolan, K. Olchanski, A. Olin, R. D. Page, A. Povilus, F. Robicheaux, E. Sarid, D. M. Silveira, J. W. Storey, R. I. Thompson, D. P. van der Werf, J. S. Wurtele, Y. Yamazaki and ALPHA Collaboration, "*Towards antihydrogen confinement with the ALPHA antihydrogen trap*", Hyperfine Interactions, **172** (1-3), pp 81-89 (2007).

18. G. Andresen, W. Bertsche, A. Boston, P.D. Bowe, C.L. Cesar, S. Chapman, M. Charlton, M. Chartier, A. Deutsch, J. Fajans, M.C. Fujiwara, R. Funakoshi, D.R. Gill, K. Gomberoff, J.S. Hangst, R.S. Hayano, R. Hydomako, M.J. Jenkins, L.V. Jørgensen, L. Kurchaninov, N. Madsen, P. Nolan, K. Olchanski, A. Olin, A. Povilus, F. Robicheaux, E. Sarid, D.M. Silveira, J.W. Storey, H.H. Telle, R.I. Thompson, D.P. van der Werf, J.S. Wurtele, and Y. Yamazaki, (ALPHA Collaboration) "*Antimatter Plasmas in a Multipole Trap for Antihydrogen*", Physical Review Letters 98, 023402-1 to 023402-4 (2007).

17. L. Poirier, R. I. Thompson, and A. Haché, "*Impossibility of negative group velocities in a periodic layer structure with or without loss*", Optics Communications **250** (4-6), pp 258-265 (2005).

16. A. Fried and R. Thompson, "*Phase Transitions in Trapped Ion Mixtures via Sympathetic Cooling*", Canadian Undergraduate Physics Journal **III** (1), pp. 15-20, (2004).

15. A.C. Szott, J.R. Cooper, R.I. Thompson, A.R.W.McKellar, N. Moazzen-Ahmadi, "*Frequency Analysis of the ν_9 band of CH_3CH_3: Experiment and Ab Initio Calculations*", Molecular Physics **101**(14), 2267-2277 (2003).

14. T.J. Harmon, N. Moazzen-Ahmadi, R.I. Thompson, "*Instability Heating of Sympathetically Cooled Ions in a Linear Paul Trap*", Physical Review A **67**(1), 013415(8) (2003).

13. R.I. Thompson, T.J. Harmon, M.G. Ball, "*The Rotating-Saddle Trap: A Mechanical Analogy to RF Electric Quadrupole Ion Trapping?*", Canadian Journal of Physics **80**(12), 1433-1448 (2002).

12. R.I. Thompson, M. Welling, H.A. Schuessler, and H. Walther, "*Gas Phase Trapped Ion Studies of Collisionally Formed MgC_{60}^+ Complexes*", Journal of Chemical Physics **116**(23), 10201-10211 (2002).

11. F. Sun, J. DeSain, G. Scott, P.Y. Hung, R.I. Thompson, G.P. Glass, and R.F. Curl, "*The Reaction of NH_2 with NO_2: the reaction of OH with NH_2O*", Journal of Physical Chemistry A **105**, 6121-6128 (2001).

10. J.D. DeSain, P.Y. Hung, R.I. Thompson, G.P. Glass, G. Scuseria, R.F. Curl, "*Kinetics of the Reaction of Propargyl Radical with Nitric Oxide*" Journal of Physical Chemistry A **104**(15), 3356-3363, (2000).

9. R.I. Thompson, L. Marmet, and B.P. Stoicheff, "*Effect of counter-intuitive time delays in nonlinear mixing*, Optics Letters **25**(2), 120-122 (2000).

8. J.D. DeSain, S.D.Sharma, R.I.Thompson, and R.F. Curl, "*Infrared Spectroscopic Analysis of the ν_t Band of the Allyl Radical at Temperatures of 293 and 195 K*", Journal of Chemical Physics **109**(18), 7803-7809 (1998).

REFEREED JOURNAL AND PROCEEDINGS CONTRIBUTIONS (*continued*):

7. M. Welling, H.A. Schuessler, R.I. Thompson, and H. Walther, "*Ion/Molecule Reactions, Mass Spectrometry, and Optical Spectroscopy in a Linear Ion Trap*", International Journal of Mass Spectrometry and Ion Processes **172** (1,2), 95-114 (1998).

6. M. Welling, R.I. Thompson, and H. Walther, "*Photodissociation of MgC_{60}^+ Complexes Generated and Stored in a Linear Ion Trap*", Chemical Physics Letters **253** (1,2), 37-42 (1996).

5. G.Z. Zhang, M. Katsuragawa, K. Hakuta, R.I. Thompson, and B.P. Stoicheff, "*Sum-Frequency Generation Using Strong-Field Coupling and Induced Transparency in Atomic Hydrogen*", Physical Review A **52** (2), 1584-1593 (1995).

4. R.I. Thompson, B.P. Stoicheff, G.Z. Zhang, and K. Hakuta, "*Time-Dependent Effects in Nonlinear Generation of VUV Radiation with Induced Transparency*", Applied Physics B **60**, S129-S139 (1995).

3. R.I. Thompson, B.P. Stoicheff, G.Z. Zhang, and K. Hakuta, "*Nonlinear Generation of 103 nm Radiation with Electromagnetically Induced Transparency*", Quantum Optics **6** (4), 349-358 (1994).
2. T. Efthimiopoulis, B. P. Stoicheff, and R.I. Thompson, "*Efficient Population Inversion in Excimer States by Supersonic Expansion of Discharge Plasmas*", Optics Letters **14** (12), 624-626 (1989).

1. R.I. Thompson, "*Rotations in Special Relativity*", Journal of the U.B.C. Physics Society **25**, 1-13 (1986).

Commissioned Reports

2. Louis Poirier, Edward P. Lozowski, Sean Maw, Darren J. Stefanyshyn, Robert I. Thompson, "*Experimental analysis of ice friction and aerodynamic drag during a World Cup 2-men bobsleigh competition*", Report commissioned by the FIBT (International Bobsleigh and Toboggan Federation), 9 pages, submitted January 21, 2011.

1. Shelley A. Page, Carl E. Weiman, Robert I. Thompson, "*Discipline-based science education research in Canada: the case for a new funding initiative*", Commissioned by the Canadian Association of Physicists, and Submitted to the Natural Sciences and Engineering Research Council; Social Sciences and Humanities Research Council; and Canadian Association of Physicists, 5 pages, January (2009).

PAPERS IN OTHER CONFERENCE PROCEEDINGS VOLUMES:

12. M.C. Fujiwara, G.B. Andresen, M.D. Ashkezari, M. Baquero-Ruiz, W. Bertsche , C.C. Bray, E. Butler , C.L. Cesar, S. Chapman, M. Charlton , C.L. Cesar, J. Fajans, T. Friesen, D.R. Gill, J.S. Hangst, W.N. Hardy, R.S. Hayano, M.E. Hayden, A.J. Humphries, R. Hydomako, S. Jonsell , L. Kurchaninov, R. Lambo, N. Madsen , S. Menary, P. Nolan, K. Olchanski, A. Olin, A. Povilus, P. Pusa, F. Robicheaux, E. Sarid, D.M. Silveira, C. So, J.W. Storey, R.I. Thompson, D.P. van der Werf, D. Wilding, J.S. Wurtele, and Y. Yamazaki (ALPHA Collaboration), "*ALPHA Antihydrogen Experiment*", 5 pages, Submitted to Proceedings for the CPT10 Conference, August 2010.

11. R. Hydomako, G.B. Andresen, M.D. Ashkezari, M. Baquero-Ruiz, W. Bertsche, P.D. Bowe, C.C. Bray, E. Butler, C.L. Cesar, S. Chapman, M. Charlton, J. Fajans, T. Friesen, M.C. Fujiwara, D.R. Gill, J.S. Hangst, W.N. Hardy, R.S. Hayano, M.E. Hayden, A.J. Humphries, S. Jonsell, L.V Jørgensen, L. Kurchaninov, R. Lambo, N. Madsen, S. Menary, P. Nolan , K. Olchanski, A. Olin, A. Povilus, P. Pusa, F. Robicheaux, E. Sarid, S. Seif El Nasr-Storey, D.M. Silveira, C. So, J.W. Storey, R.I. Thompson, D.P. van der Werf, D. Wilding, J.S. Wurtele, Y. Yamazaki, "*Search for Trapped Antihydrogen: First Candidate Events*", Proceedings of Science electronic Journal: ICHEP2010 Conference Proceedings (http://pos.sissa.it/cgi-bin/reader/conf.cgi?confid=120), Session 12, Paper 479, 3 pages (2010). (non-refereed) (http://pos.sissa.it/archive/conferences/120/479/ICHEP%202010_479.pdf)

10. G.B. Andresen, W. Bertsche, P.D. Bowe, C.C. Bray, E. Butler, C.L. Cesar, S. Chapman, M. Charlton, J. Fajans, M.C. Fujiwara, R. Funakoshi, D.R. Gill, J.S. Hangst , W.N. Hardy, R.S. Hayano, M.E. Hayden, A.J.

PAPERS IN OTHER CONFERENCE PROCEEDINGS VOLUMES (*continued*):

Humphries, R. Hydomako, M.J. Jenkins, L.V. Jørgensen, L. Kurchaninov, R. Lambo, N. Madsen, P. Nolan, K. Olchanski, A. Olin, R.D. Page, A. Povilus, P. Pusa, F. Robicheaux, E. Sarid, S. Seif El Nasr, D.M. Silveira, J.W. Storey, R.I. Thompson, D.P. van der Werf, J.S. Wurtele and Y. Yamazaki. "*First Attempts at Antihydrogen Trapping in ALPHA*", Proceedings of the Workshop on Cold Antimatter Plasmas and Application to Fundamental Physics (AIP Conference Proceedings **1037**), pp.241-248 (2008).

9. M.C. Fujiwara, G. B. Andresen, W. Bertsche, P.D. Bowe, C.C. Bray, E. Butler, C. L. Cesar, S. Chapman, M. Charlton, J. Fajans, R. Funakoshi, D.R. Gill, J.S. Hangst, W.N. Hardy, R.S. Hayano, M.E. Hayden, A.J. Humphries, R. Hydomako, M.J. Jenkins, L.V. Jørgensen, L. Kurchaninov, W. Lai, R. Lambo, N. Madsen, P. Nolan, K. Olchanski, A. Olin, A. Povilus, P. Pusa, F. Robicheaux, E. Sarid, S. Seif El Nasr, D.M. Silveira, J.W. Storey, R.I. Thompson, D.P. van der Werf, L. Wasilenko, J.S. Wurtele, and Y. Yamazaki (ALPHA Collaboration), "*Particle Physics Aspects of Antihydrogen Studies with ALPHA at CERN*", Proceedings of the Workshop on Cold Antimatter Plasmas and Application to Fundamental Physics (AIP Conference Proceedings **1037**), pp.208-220 (2008).

8. J. Fajans, G.B. Andresen, W. Bertsche, P.D. Bowe, C.C. Bray, E. Butler, C.L. Cesar, S. Chapman, M. Charlton, M.C. Fujiwara, R. Funakoshi, D.R. Gill, J.S. Hangst, W.N. Hardy, R.S. Hayano, M.E. Hayden, A.J. Humphries, R. Hydomako, M.J. Jenkins, L.V. Jørgensen, L. Kurchaninov, R. Lambo, N. Madsen, P. Nolan, K. Olchanski, A. Olin, R.D. Page, A. Povilus, P. Pusa, F. Robicheaux, E. Sarid, S. Seif El Nasr, D.M. Silveira, J.W. Storey, R.I. Thompson, D.P. van der Werf, J.S. Wurtele and Y. Yamazaki, "*Antiproton compression and radial measurements*", Proceedings of the Workshop on Cold Antimatter Plasmas and Application to Fundamental Physics (AIP Conference Proceedings **1037**), pp.95-105 (2008).

7. N. Madsen, G. Andresen, W. Bertsche, A. Boston, P. D. Bowe, E. Butler, C. L. Cesar, S. Chapman, M. Charlton, M. Chartier, J. Fajans, R. Funakoshi, D. R. Gill, J. S. Hangst W. N. Hardy, R. S. Hayano, R. Hydomako, M. J. Jenkins, L. V. Jorgensen, L. Kurchaninov, P. Nolan, K. Olchanski, A. Olin, R. D. Page, A. Povilis, F. Robicheaux, E. Sarid, D. M. Silveira, J. W. Storey, R. I. Thompson, D. P. van der Werf, J. S. Wurtele and Y. Yamazaki, (ALPHA Collaboration), "*THE ALPHA ANTIHYDROGEN EXPERIMENT*", Proceedings of the Fourth Meeting on CPT and Lorentz Symmetry, World Scientific Publishing Company, V. Alan Kostelecký (*Ed.*), pp. 143-149 (2008).

6. H.A. Schuessler, F. Buchinger, T. Cocolios, J.E. Crawford, S.Gulick, H. Iimura, J.K.P. Lee , C.D.P.Levy, V. Lioubimov, F. Zhu, J. Rikovska, S.D. Rosner, R. Thompson, and R. Wyss, "*Nuclear Moments of the Radioactive Isotope ^{131}La Determined by Collinear Fast-Beam Laser Spectroscopy*", LAP 2006, International Conference on Laser Probing, 2 pages, (2006).

5. B. KC, D. Irvine-Halliday, K. Muldrew, C.B. Frank, N.G. Shrive, R.I. Thompson, and K. Forrester, "*A Chemiluminescent Diagnostic Technique to Distinguish Normal and Abnormal Tissues*", Annals of Biomedical Engineering **28**, Supplement 1, S-128, (2000).

4. B. KC, K. Forrester, D. Irvine-Halliday, K. Muldrew, C.B. Frank, N. Shrive, and R.I. Thompson, "*In-Vitro Measurements of Light Transmission Parallel and Perpendicular to the Collagen Orientations in Tendons*". Proceedings of SPIE – The International Society for Optical Engineering **3913**, In-Vitro Diagnostic Instrumentation (Gerald E. Cohen Ed.), 138-144 (2000).

3. R.I. Thompson, M. Welling, and H. Walther, "*Studies of Photodissociation of MgC_{60}^+ in a Linear Ion Trap*", Recent Advances in the Chemistry and Physics of Fullerenes: Volume 4, 191st Meeting of the Electrochemical Society, Fullerenes Symposium, Montreal, Quebec, Canada, K.M. Kadish and R.S. Ruoff, eds., The Electrochemical Society Proceedings Series (PV 97-14), Pennington, NJ, 70-81 (1997).

2. M. Welling, H. Schuessler, R.I. Thompson, and H. Walther, "*Collisional Production, Purification, and Analysis of MgC_{60}^+ Complexes using a Linear Ion Trap*", *ibid.* (ref.10), pp.751-762, (1997).

PAPERS IN OTHER CONFERENCE PROCEEDINGS VOLUMES (*continued*):

1. K. Hakuta, G.Z. Zhang, M. Ohto, R.I. Thompson, and B.P. Stoicheff, "*Nonlinear Optical Generation with Electromagnetically Induced Transparency in Atomic Hydrogen*", Laser Spectroscopy XI, 11th Intl. Conf. on Laser Spectroscopy, Hot Springs, Virginia, U.S.A., L. Bloomfield, T. Gallagher, and D. Larsen, eds., Am. Inst. Phys., New York, 279-280, (1994).

Ph.D. THESIS

1. R.I. Thompson, "*Four-Wave Sum-Mixing with Induced Transparency in Atomic Hydrogen*", The University of Toronto (1994).

B.Sc. HONOURS THESIS

1. R.I. Thompson, "*Preliminary Analysis of the ν_{12} 0 $\rightarrow$ 1 Vibration-Rotation-Torsion Transition Infrared Spectrum of Deuterated Ethane (CH_3CD_3)*", University of British Columbia (1987).

Successful Research Ethics Approval Applications

2. Robert I. Thompson, Daria Ahrensemier, Jason Donev, R. Barton Hicks, Randall B. Stafford, "*Evaluation of Learning Outcomes and Student Learning Experience in PHYS223 and PHYS211/221*", 13 pages, approved by the University of Calgary Conjoint Faculties Research Ethics Board, Apr. 20, (2009).

1. Robert I. Thompson, "*Evaluating the effectiveness of teaching introductory quantum mechanics based on a wave mechanics foundation versus a Dirac notation foundation.*", 10 pages, approved by the University of Calgary Conjoint Faculties Research Ethics Board, Feb. 5, (2009).

News Publications in Physics Journals

4. R.I. Thompson, "*News from the Canadian Association of Physicists*", Canadian Undergraduate Physics Journal **VIII** (1), p.30, November (2009).

3. R.I. Thompson, "*Interview with J. Dahn, 2009 Medalist, CAP Medal for Excellence in Teaching*", Physics in Canada **65** (3), pp.175-178, (2009)

2. R.I. Thompson, "*The Canadian Association of Physicists and You*", Canadian Undergraduate Physics Journal **VII** (3), p.17, April (2009).

1. R.I. Thompson, "*Response of Dr. Robert Thompson to Receiving the CAP Teaching Medal*", Physics in Canada **63** (3) pp. (2007) (*incomplete form*), and **63** (4), p.182 (2007) (*full form*). (*invited submission*).

Newsletters Edited/Written

2. R.I. Thompson, "*Newsletter of the CAP Division of Physics Education*", 8 pages, Published on-line February (2009),

1. R.I. Thompson, "*Newsletter of the CAP Division of Physics Education*", 7 pages, Published on-line December (2008),

RESEARCH PROJECTS IN PROGRESS (Manuscripts in Preparation):

L. Poirier, E.P. Lozowski, S. Maw, D.J. Stefanyshyn, R.I. Thompson, "*Experimental analysis of ice friction and aerodynamic drag during a World Cup bobsleigh competition"*.

L. Poirier, E.P. Lozowski, S. Maw, D.J. Stefanyshyn, R.I. Thompson, "*Simulating bobsleigh runner friction with the FAST-II package"*.

RESEARCH PROJECTS IN PROGRESS (Manuscripts in Preparation, continued):

M. Cummings, M. Preston, J. Stang, R.I. Thompson, "*A survey of computational techniques as applied to trapped ion evolution in rf-electric quadrupole ion traps*".

R.I. Thompson, "*The Role of Dirac Notation in Undergraduate Physics Education: When and why do we introduce it?*".

M. Cummings, R.I. Thompson, "*Accurate Temperature Measurement in Computational Studies of trapped Ion Systems".*

R.I. Thompson, M. Fujiwara, "*Project ALPHA: Anti-Hydrogen Physics at CERN*", *Invited Review Article.*

ALPHA Collaboration, "*The ALPHA Antihydrogen Physics Apparatus*", Instrumentation & Methods Article.

INTERNAL DOCUMENTS
Operations Manual, Laser Spectroscopy and Quantum Electronics Laboratory, 262 pages, 1999.

ORAL AND POSTER PRESENTATIONS

REFEREED CONFERENCE PRESENTATIONS

2. L. Poirier, E.P. Lozowski, S. Maw, D.J. Stefanyshyn, R.I. Thompson, "*Getting a grip on ice friction"*. 2011 International Offshore Polar Engineers Conference. Maui, HI. 2011-TPC-901, June (2011).

1. Ziad Abusara, Ruth Seerattan, Rob Thompson, Walter Herzog, "*Chondrocyte Deformations in the Live Mouse Knee*", Poster Presentation, the Biophysical Society 53rd Annual Meeting, Boston, Massachusetts, February 28 - March 4, (2009).

INVITED CONFERENCE PRESENTATIONS AND SCIENTIFIC TALKS:

(Paper presenter is underlined)

39. Robert I. Thompson, "*Antihydrogen Trapped: Project ALPHA's Road to the Creation, Storage, and Eventual Study of Antihydrogen*", Invited Talk, 2011 Winter Nuclear and Particle Physics Conference, Banff, AB, February 2011.

38. L. Poirier, E. P. Lozowski, S. Maw, D. J. Stefanyshyn, R. I. Thompson, "*Friction measurements in the sport of bobsleigh*", Invited Talk, 2011 FIBT World Championships Meeting, Konigsee, Germany, Feb. 2011.

37. Robert I. Thompson, "*Antihydrogen Trapped: Project ALPHA's Road to the Creation, Storage, and Eventual Study of Antihydrogen*", Invited Seminar, Human Performance Laboratory, Faculty of Kinesiology, University of Calgary, February 3, 2011.

36. Robert I. Thompson, "*Labatorials: In pursuit of effective small group instruction within large registration physics service courses*", Invited Colloquium, Department of Physics and Astronomy, University of Calgary, January28, 2011.

35. Robert I. Thompson, "*Labatorials – A report after their first full year at the University of Calgary*", Invited Talk, 65th CAP Annual Congress, Toronto, ON, June 2010.

34. Robert I. Thompson, "*The Pursuit of Antihydrogen Trapping and Spectroscopy*", Invited Talk, 64th CAP Annual Congress, Moncton, NB, June 2009.

33. R.I. Thompson, Walter Hardy, Mike Hayden, Scott Menary, "Canadian University Researchers, TRIUMF, and the ALPHA Project", Invited Presentation, TRIUMF External Review of the ALPHA Project Meeting, Vancouver, BC, Canada, April 7, 2008.

INVITED CONFERENCE PRESENTATIONS AND SCIENTIFIC TALKS (*continued*):

32. Robert I. Thompson, "Simplifying the complex with familiarity: An approach to effective physics education at all scales", Invited Plenary Talk, 62nd CAP Annual Congress, Saskatoon, Saskatchewan, Canada, 2007 June.

31. Robert Thompson, "Graduate Studies in Physics and Astronomy: A Canadian Perspective", Invited Talk, The 2nd Canadian-American-Mexican Graduate Student Conference (CAM2005), San Diego, California, Aug. 19, 2005.

30. Robert I. Thompson, "From ALPHA to TITAN: Atomic, Nuclear, and Particle Physics in Ion Traps", Departmental Colloquium, Department of Physics, University of Lethbridge, February 17, 2005.

29. R.I. Thompson, "*Laser-Induced Fluorescence Spectroscopy with Trapped Ions*", TITAN Collaboration Meeting, Invited Presentation, Vancouver, B.C., Canada, June 2-3, 2003.

28. R.I. Thompson, "*Laser-Induced Fluorescence: More than just a spectroscopic tool*", Invited Talk, Workshop on TRIUMF-TRAP: A Facility for Exotic and Highly Charged Ion Beams at ISAC, held at TRIUMF, Vancouver, B.C., April 11-13, (2002).

27. R.I. Thompson, "*Counting Atoms One by One: Collisions, Laser Cooling, and Mass Spectrometry in Ion Traps*", Departmental Colloquium, University of Waterloo, held on November 8, (2001).

26. R.I. Thompson, "*Counting Atoms One by One: Collisions, Laser Cooling, and Mass Spectrometry in Ion Traps*", Departmental Colloquium, University of Lethbridge, Lethbridge, Alberta, October 18, (2001).

25. R.I. Thompson, "*Counting Atoms One by One: Collisions, Laser Cooling, and Mass Spectrometry in Ion Traps*", Departmental Colloquium, York University, Toronto, Ontario, October 11, (2001).

24. R. I. Thompson, "*Linear-Geometry Ion Traps: From Atomic Collisions to Sympathetic Laser Cooling of Molecules*", Institute Seminar, TRIUMF, Vancouver, B.C., Canada, September 18, 2001.

23. R.I. Thompson, *"Trapping and Crystallization in 2-D RF-Quadrupole Ion Traps"*, Invited Paper, Canadian Institute for Advanced Research Meeting on Quantum Computation, June 20-21, (2001), held at the Fields Institute in Toronto, Ontario, Canada.

22. R.I. Thompson, "*Mass Spectrometry in a Linear Geometry Ion Trap*", Invited Seminar, Stable Isotope Laboratory Seminar Series, University of Calgary, Calgary, Alberta, Canada, February 14, (2001)

21. R.I. Thompson, "*Ion Traps and Laser Cooling: Can We See a Single Atom?*", Departmental Colloquium, Department of Physics and Astronomy, University of Victoria, January 17, (2001).

20. R.I. Thompson, "*Atomic and Molecular Physics in Ion Traps"*, Invited Paper, CAP2000, The 55th Congress of the Canadian Association of Physicists, York University, Toronto, Ontario, June 4-7, 2000.

19. Robert Thompson, "Ion Traps: Can we see a single atom?" Departmental Colloquium, Department of Physics and Astronomy, York University, Toronto, Ontario, December 1 (1998).

18. Robert Thompson, "Ion Traps: Can we see a single atom?" Undergraduate Seminar, UBC Physics Society, University of British Columbia, Vancouver, British Columbia, March 19 (1999).

17. Robert Thompson, "Ion Traps: Can we see a single atom?" Departmental Colloquium, Department of Physics, University of Alberta, Edmonton, Alberta, March 5 (1999).

16. Robert Thompson, "Ion Traps: Can we see a single atom?" Quantum Optics and Condensed Matter Physics Seminar, Department of Physics, University of Toronto, Toronto, Ontario, November 30 (1998).

INVITED CONFERENCE PRESENTATIONS AND SCIENTIFIC TALKS (*continued*):

15. Robert Thompson, "Ion Traps: Can we see a single atom?" Undergraduate Seminar, Department of Physics and Astronomy, University of Western Ontario, London, Ontario, October 29 (1998).

14. Robert Thompson, "Ion Traps: Can we see a single atom?" University of Guelph Physics Club Seminar, Department of Physics, University of Guelph, Guelph, Ontario, October 28 (1998).

13. Robert Thompson, "Ion Traps: Can we see a single atom?" Undergraduate Seminar, Department of Physics and Astronomy, University of Calgary, Calgary, Alberta, October 23 (1998).

12. R.I. Thompson, *From Atomic Hydorgen to Buckminster Fullerenes: Studies of Gaseous Atoms and Molecules in the Low Density Limit*, University of Calgary, Department of Physics, Invited Research Presentation, June 2, (1998), in Calgary, Alberta, Canada.

11. R.I. Thompson, *Ion Traps: Can We See a Single Atom*, University of Calgary, Department of Physics, Invited Topical Presentation, June 1, (1998), in Calgary, Alberta, Canada.

10. R.I. Thompson, *Ion Traps: Can We See a Single Atom*, Rice University, Rice Quantum Institute / Chemistry Department Joint Seminar, May 22, (1998), in Houston, Texas, USA.

9. R.I. Thompson, *Trapped Buckyballs: Spectroscopy of MgC_{60}^+ in a Linear Ion Trap*, Rice University, Rice Quantum Institute Seminar Series, January 13, (1998), in Houston, Texas, USA.

8. R.I. Thompson, *Buckyballs in Ion Traps: Generation, Manipulation, and Analysis of MgC_{60}^+ Complexes*, Texas A&M University, Department of Physics, Atomic Physics Seminar Series, September 30, (1997) in College Station, Texas, USA.

7. R.I. Thompson, *Buckyballs in Ion Traps: Generation, Manipulation, and Analysis of MgC_{60}^+ Complexes*, University of Western Ontario, Department of Chemistry, Invited Seminar, December 18, (1996), in London, Ontario, Canada.

6. R.I. Thompson, *Ion-Molecule Reactions: Optical and Mass Spectroscopy in a Compact Linear Ion Trap*, Sciex Corporation, Invited Seminar, September 18, (1996), in Concord, Ontario, Canada.

5. R.I. Thompson, *Generation, Storage, and Analysis of MgC_{60}^+ Complexes in a Linear Geometry, Radio Frequency Ion Trap*, University of British Columbia, Department of Chemistry, Physical Chemistry Seminar Series, January 5, (1996), in Vancouver, British Columbia, Canada.

4. R.I. Thompson, *Crystallization, Laser Cooling, and Spectroscopy of Ions in Nonspherical Radiofrequency Traps*, University of British Columbia, Department of Physics, Condensed Matter Seminar Series, January 4, (1996), in Vancouver, British Columbia, Canada.

3. B.P. Stoicheff and R.I. Thompson, *Coherence, Interference, and Induced Transparency in Atomic Systems*, Invited Paper, C.A.P. Annual Congress, June 11-16, (1995), held in Québec, Québec, Canada.

2. R.I. Thompson, *Electromagnetically Induced Transparency Effects in Nonlinear Mixing in Atomic Hydrogen*, California Institute of Technology, Physics Division, Invited Seminar, November 28, (1994), in Pasadena, California, USA.

1. R.I. Thompson, *Electromagnetically Induced Transparency Effects in Nonlinear Mixing in Atomic Hydrogen*, Ontario Laser and Lightwave Research Centre Seminar Series, January 11, (1994), in Toronto, Ontario, Canada.

CONTRIBUTED CONFERENCE PRESENTATIONS AND SCIENTIFIC TALKS:

(Paper presenter is underlined)

87. R.I. Thompson, T. Friesen, M. Fujiwara, R. Hydomako for the ALPHA Collaboration, "*Antihydrogen Trapped in ALPHA*", Poster presentation, 2011 Alberta QuantumNano Workshop, Red Deer, Alberta, July 6, 2011.

86. M. Cummings, R.I. Thompson, "*The Computational Study of Ion Trapping: Optimising Simulation Speed and Accuracy*", Poster presentation, 2011 Alberta QuantumNano Workshop, Red Deer, Alberta, July 6, 2011.

85. D. Ahrensmeier, T. Antimirova, M. Milner-Bolotin, R.I. Thompson, *"Challenges of implementing PER-informed changes in Canadian Physics Departments – One year later",* Workshop presentation, 66th Canadian Association of Physicists Annual Congress, St. John's, NL, June 2011.

84. D. Ahrensmeier, R.I. Thompson, *"Education of physics graduate students – is it working?",* Workshop presentation, 66th Canadian Association of Physicists Annual Congress, St. John's, NL, June 2011.

83. D. Ahrensmeier, M. Potter, W.J.F. Wilson, R.I. Thompson, *"Labatorials for engineering students – a multivariate optimization problem in course development",* Contributed Talk, 66th Canadian Association of Physicists Annual Congress, St. John's, NL, June 2011.

82. L. Poirier, E. Lozowsky, S. Maw, Darren Stefanyshyn, R.I. Thompson, *"Friction and Drag Measurements in the Sport of Bobsleigh",* Contributed Talk, 66th Canadian Association of Physicists Annual Congress, St. John's, NL, June 2011.

81. R.I. Thompson for the ALPHA Collaboration, *"Atomic Physics in ALPHA",* Contributed Talk, 66th Canadian Association of Physicists Annual Congress, St. John's, NL, June 2011.

80. L. Seify, M. Cummings, R. Thompson, "*Simulations of ions in electromagnetic traps*", Contributed Talk, 4th Undergraduate Pacific Physics and Astronomy Conference, Vancouver, BC, March 4-6, 2011.

79. R. Hydomako, G.B. Andresen, M.D. Ashkezari, M. Baquero-Ruiz, W. Bertsche, P.D. Bowe, C.C. Bray, E. Butler, C.L. Cesar, S. Chapman, M. Charlton, J. Fajans, T. Friesen, M.C. Fujiwara, D.R. Gill, J.S. Hangst, W.N. Hardy, R.S. Hayano, M.E. Hayden, A.J. Humphries, S. Jonsell, L.V Jørgensen, L. Kurchaninov, R. Lambo, N. Madsen, S. Menary, P. Nolan , K. Olchanski, A. Olin, A. Povilus, P. Pusa, F. Robicheaux, E. Sarid, S. Seif El Nasr-Storey, D.M. Silveira, C. So, J.W. Storey, R.I. Thompson, D.P. van der Werf, D. Wilding, J.S. Wurtele, Y. Yamazaki, "*Search for Trapped Antihydrogen: First Candidate Events*", Poster Presentation, 35th International Conference on High Energy Physics (ICHEP2010), Paris, France, July 22-28 (2010).

78. D. Ahrensmeier, L. Borvayeh, J. Donev, P. Gimby, H. Graumann, R.B. Hicks, P. Irwin, A. Louro, R. Stafford, R.I. Thompson, *"Reflective Sails for Air-track Carts – Design and Testing of an Inexpensive and Effective Design",* Contributed Talk, 65th CAP Annual Congress, Toronto, ON, June 2010.

77. R.I. Thompson, T. Antimirova, M. Milner-Bolotin *"Round Table Discussion: Transition into University Teaching",* New Faculty Workshop Session, 65th CAP Annual Congress, Toronto, ON, June 2010.

76. D. Ahrensmeier, J. Donev, R. Stafford, R.I. Thompson, *"TA training at the University of Calgary: Why we require our TAs todo exercises in first year physics and take tests on it",* Contributed Talk, 65th CAP Annual Congress, Toronto, ON, June 2010.

75. D. Ahrensmeier, R.I. Thompson, *"Challenges of implementing PER driven changes in Canadian Physics Departments",* Workshop Presentation, 65th CAP Annual Congress, Toronto, ON, June 2010.

74. Robert I. Thompson, Shelley Page, Carl Wieman, "*A Discussion of the Present and Future of Physics Education Research in Canada*", Contributed Talk, 64th CAP Annual Congress, Moncton, NB, June 2009.

CONTRIBUTERD CONFERENCE PRESENTATIONS AND SCIENTIFIC TALKS (*cont.*):

73. Robert I. Thompson, Cindy Graham, James Stallard, Anthony Russell, Helen P. Gardiner, Ian R. Hunt, Alfredo Louro, Leslie Reid, Ben Stephenson, "*RAISE and its Faculty Teaching Engagement Survey at the University of Calgary*", Contributed Talk, 64th CAP Annual Congress, Moncton, NB, June 2009.

72. J.M.K.C. Donev, Daria Ahrensmeier, A. Louro, R. Stafford, L. Borvayeh, R.I. Thompson, "*A Pre-test / Post-test Approach to Evaluating the Effectiveness of Individual Instructional Sessions*", Contributed Talk, 64th CAP Annual Congress, Moncton, NB, June 2009.

71. Daria Ahrensmeier, J.M.K.C. Donev, R.B. Hicks, A. Louro, R. Stafford, L. Borvayeh, R.I. Thompson, "*Labatorials - a step towards concept-based instruction using blended learning*", Contributed Talk, 64th CAP Annual Congress, Moncton, NB, June 2009.

70. Scott Robert Menary, Makoto Fujiwara, David Gill, Walter Hardy, Michael Hayden, Richard Hydomako, Leonid Kurchaninov, Konstantin Olchanski, Art Olin, Sarah Seif El Nasr, James Storey, Robert Thompson, "*Antihydrogen Detection with ALPHA*", Contributed Talk, 64th CAP Annual Congress, Moncton, NB, June 2009.

69. Louis Poirier, Edward Lozowski, Sean Ma, Darren Stefanyshyn, Robert Thompson, "*Fresh Approach to bobsleigh runner design*", Poster Presentation, 64th CAP Annual Congress, Moncton, NB, June 2009.

68. D. Ahrensmeier, J.M.K.C. Donev, R.B. Hicks, A. Louro, R. Stafford, L. Borvayeh, R.I. Thompson, "*Towards concept-based instruction with blended learning in Labatorials*", The 11th Annual American Physical Society Northwest Section Meeting, Vancouver, BC, Canada, May 14-16 (2009).

67. R.I. Thompson, T. Friesen, "*Laser spectroscopy of antihydrogen with pulsed and cw sources*", Contributed Talk, ALPHA Collaboration Meeting, Geneva, Switzerland (CERN), March 16-18, (2009).

66. H.A.Schuessler, F.Buchinger, T.Cocolios, J.E.Crawford, S.Gulick, H.Iimura, J.K.P.Lee , C.D.P.Levy, V.Lioubimov, F.Zhu, J.Rikovska, S.D.Rosner, R.Thompson, and R.Wyss, "*Nuclear Moments of the Radioactive Isotope ^{131}La Determined by Collinear Fast-Beam Laser Spectroscopy*", The Fifth International Conference on Exotic Nuclei and Atomic Masses (ENAM), Ryn, Poland, September 7 – 13 , (2008)

65. Jared B. Stang, M. Cummings, and R.I. Thompson, "*Selecting the right tools for the job: Numerical methods for trapped ion simulations*", Rising Stars of Research 2008, National undergraduate Science and Engineering Research Poster Competition, University of British Columbia, Vancouver, BC, August, (2008).

64. C.L. Cesar, G.B. Andresen, W. Bertsche, P.D. Bowe, C.C. Bray, E. Butler, S. Chapman, M. Charlton, J. Fajans, M.C. Fujiwara, R. Funakoshi, D.R. Gill, J.S. Hangst, W.N. Hardy, R.S. Hayano, M.E. Hayden, A.J. Humphries, R. Hydomako, M.J. Jenkins, L.V. Jorgensen, L. Kurchaninov, W. Lai, R. Lambo, N. Madsen, P. Nolan, K. Olchanski, A. Olin, A. Povilus, P. Pusa, F. Robicheaux, E. Sarid, S. Seif El Nasr, D.M. Silveira, J.W. Storey, R.I. Thompson, D.P. van der Werf, L. Wasilenko, J.S. Wurtele, and Y. Yamazaki (ALPHA Collaboration), "*Antihydrogen Physics at ALPHA/CERN*", International Conference on Precision Physics of Simple Atomic Systems PSAS 2008, Windsor, ON, Canada, July 21-26, (2008).

63. Makoto C. Fujiwara, David Gill, Leonid Kurchaninov, Konstantin Olchanki, Art Olin, James Storey, Walter Hardy, Sarah Seif El Nasr, Richard Hydomako, Robert Thompson, Mike Hayden, Scott Menary, "New Results from ALPHA Antihydrogen Project at CERN", Contributed Talk, 63rd CAP Annual Congress, Quebec City, Quebec, Canada, 2008 June.

62. Robert I. Thompson, David Feder, Rachid Ouyed, Michael E. Wieser, "A 'Skills for Physicists' Core in Undergraduate Curricula", Contributed Talk, 63rd CAP Annual Congress, Quebec City, Quebec, 2008 June.

61. L. Poirier, Darren Stefanyshyn, Sean Maw, Robert I. Thompson, "Optimization of rocker measurements with a portable gauge", Contributed Talk, 63rd CAP Annual Congress, Quebec City, Quebec, 2008 June.

CONTRIBUTERD CONFERENCE PRESENTATIONS AND SCIENTIFIC TALKS (*cont.*):

60. R.I. Thompson, M. Cummings, P.E.A. Ashby, Poster Presentation, "*A Computational Study of Ion Heating Rates in both Conventional and Rotating Linear RF-Electric Quadrupole Ion Traps*" 25th International Conference on Photonic, Electronic & Atomic Collisions, Freiburg, Germany, 27 July, 2007.

59. Michael Cummings , Phillip Ashby, Robert Thompson, "Ion Heating Models in Conventional and Rotating rf-Electric Quadrupole Traps", 62nd CAP Annual Congress, Saskatoon, Saskatchewan, Canada, 2007 June.

58. Richard Hydomako, Robert I. Thompson, Makoto C. Fujiwara, Dave. R. Gill, Leonid Kurchaninov, Konstantin Olchanski, Art Olin, James W. Storey, Walter N. Hardy, Mike E. Hayden, and Scott Menary (ALPHA Collaboration) , "First results with the ALPHA antihydrogen apparatus", Contributed Talk, 62nd CAP Annual Congress, Saskatoon, Saskatchewan, Canada, 2007 June.

57. H.A. Schuessler, V.Lioubimov, F. Zhu, C.D.P. Levy, M. Pearson, F. Buchinger, J.K.P. Lee, J.E. Crawford, S. Gulick, T. Cocolios, H. Iimura, R. Thompson, S.D. Rosner, R. Wyss, J. Rikovska, "Nuclear moments of the radioactive isotope ^{131}La determined by collinear fast-beam laser spectroscopy", Contributed talk, International Conference on Nuclear Physics 2007, Tokyo, Japan, 2007 June

56. R. Hydomako, R.I. Thompson, M.C. Fujiwara, D.R. Gill, L. Kurchaninov, K. Olchanski, A. Olin, J.W. Storey, W.N. Hardy, D.J. Jones, M.E. Hayden, H. Malik, and S. Menary (ALPHA Collaboration), "Traps for Antimatter: The ALPHA Antihydrogen Apparatus", Contributed talk, DAMOP/DAMPhi 2007: The 2007 Joint Meeting of the Division of Atomic, Molecular, and Optical Physics (APS) and the Division of Atomic & Molecular Physics, and Photon Interactions (CAP) , Calgary, Alberta, Canada, 2007 June

55. Michael Cummings, Phillip Ashby, Robert Thompson, "A Computational Comparison of Ion Heating Rates in Conventional and Rotating rf-Electric Quadrupole Ion Traps", Poster Presentation, DAMOP/DAMPhi 2007 (see presentation 87), Calgary, Alberta, Canada, 2007 June

54. H.A. Schuessler, F. Buchinger, T. Cocolios, J.E. Crawford, S.Gulick, H. Iimura, J.K.P. Lee , C.D.P.Levy, V. Lioubimov, F. Zhu, J. Rikovska, S.D. Rosner, R. Thompson, and R. Wyss, "Nuclear Moments of Short-Lived Lanthanum Isotopes Determined by Collinear Fast-Beam Laser Spectroscopy", Contributed Talk, LAP 2006 International Conference on Laser Probing, Vienna, Austria, 2006 September.

53. M. Deghani, Z. Abusara, R.I. Thompson, N. Moazzen-Ahmadi, "Time-resolved spectroscopy of transient molecules in a hollow cathode discharge cell", Contributed Talk, 2006 Annual Congress of the Canadian Association of Physicists, St. Catherines, ON, 2006 June, *Note: due to an oversight at the abstract submission stage, my name does not appear on this presentation in the published program for this conference.*

52. Robert Thompson, "The role of new student orientation in the undergraduate physics curriculum", Contributed Talk, The 61st CAP Annual Congress, St. Catherines, Ontario, Canada, 2006 June

51. R. Hydomako, M. Fujiwara, R.I. Thompson, "Collisional Cooling in Anti-Hydrogen Formation", Contributed Talk, The 61st CAP Annual Congress, St. Catherines, Ontario, Canada, 2006 June.

50. Robert Thompson, Jeremie Choquette, Daniel Foster, "RF Trapping and Mass Spectrometry with Low Mass Ions", Poster Presentation, 2006 Annual Meeting of the Division of Atomic, Molecular, and Optical Physics of the Amrican physical Society, Knoxville, Tennessee, USA, 2006 May

49. Michael Cummings, Phillip E. C. Ashby, Robert I. Thompson , "A Computational Comparison of the Multi-Ion Dynamics in Conventional and Flapping Potentials", Poster Presentation, Trapped Charged Particles and Fundamental Interactions 2006, Parksville, British Columbia, Canada, 2006 September

48. T. Cocolios, F. Buchinger, J. Crawford, S. Gulich, H. Iimura, J.K. Lee, P. Levy, D. Rosner, H. Schuessler, R. I. Thompson, "Collinear Laser Spectroscopy on Neutron Deficient La Isotopes at ISAC-

CONTRIBUTERD CONFERENCE PRESENTATIONS AND SCIENTIFIC TALKS (*cont.*):
TRIUMF", Poster Presentation, The Second Canadian-American-Mexican Graduate Student Meeting (CAM2005), San Diego, California, USA, 08/20/2005

47. Robert Thompson, "Computational and theoretical analyses of sympathetic cooling of ions in a linear Paul Trap", Contributed Talk, TITAN Collaboration Meeting and Workshop, TRIUMF, Vancouver, B.C., June 10-11, 2005.

46. Louis Poirier, Jérémie J. Choquette, Robert I. Thompson, "Nanosecond spectroscopy of trapped ion samples in a linear Paul trap", Poster Presentation, Annual Congress of the Canadian Association of Physicists, UBC/TRIUMF, Vancouver, B.C., June 5-8, 2005.

45. Jérémie J. Choquette, Robert I. Thompson, "Mass Spectrometry and Ion Species Evolutions in a Linear Paul Trap", Contributed Talk, Annual Congress of the Canadian Association of Physicists, UBC/TRIUMF, Vancouver, B.C., June 5-8, 2005.

44. Robert I. Thompson, "The Role of Dirac Notation in Undergraduate Quantum Mechanics Instruction: When And Why Do We Introduce It?", Contributed Talk, Annual Congress of the Canadian Association of Physicists, UBC/TRIUMF, Vancouver, B.C., June 5-8, 2005.

43. Louis Poirier, Robert I. Thompson, and A. Haché "*Impossibility of negative group velocity in a periodic layer structure with or without loss*", Contributed Talk, American Physical Society Northwest Section Meeting, University of Victoria, Victoria, B.C., May 13-15, 2005.

42. Louis Poirier, Jérémie J. Choquette, Robert I. Thompson, "Nanosecond spectroscopy of trapped ion samples in a linear Paul trap", Poster Presentation, American Physical Society Northwest Section Meeting, University of Victoria, Victoria, B.C., May 13-15, 2005.

41. T.J. Harmon, R.I. Thompson, B. Sanders, "*Tripartite entanglement of a trapped atom in an optical cavity*", Contributed Talk, 59th Annual Congress of the Canadian Association of Physicists held in Winnipeg, Manitoba, June 12-16, (2004).

40 J. Choquette, R.I. Thompson " *Mixed Sample Ion Trapping: Analysis and Evolution of Trapped Species*", Poster Presentation, 59th Annual Congress of the Canadian Association of Physicists held in Winnipeg, Manitoba, June 12-16, (2004).

39. T.J. Harmon, N. Moazzen-Ahmadi, R.I. Thompson, "*Computational and theoretical analysis of sympathetic cooling of non-crystallized ions in a linear Paul trap*", Contributed Talk, Joint Meeting of the Division of Atomic, Molecular, and Optical Physics (APS) and the Division of Atomic and Molecular Physics (CAP), held in Tucson, Arizona, May 24-29, (2004).

38. A.C. Szott, J.R. Cooper, R.I. Thompson, A.R.W.McKellar, N. Moazzen-Ahmadi, "*Frequency Analysis of the ν_9 band of CH_3CH_3: Experiment and Ab Initio Calculations*", Contributed Talk, 58th Annual Congress of the Canadian Association of Physicists held in Charlottetown, Prince Edward Island, June 8-11, (2003).

37. T.J. Harmon, N. Moazzen-Ahmadi, R.I. Thompson, "*Instability heating of sympathetically cooled ions in a linear Paul Trap*", Contributed Talk, 58th Annual Congress of the Canadian Association of Physicists held in Charlottetown, Prince Edward Island, June 8-11, (2003).

36. J. Dilling, P. Bricault, R. Thompson, "*TITAN: Triumf's Ion Trap for Atomic and Nuclear science*", NSERC Large Subatomic Physics Project Collaborations Meeting, Ottawa, Ontario, Canada, Feb. 1, 2003.

35. R. Thompson, T. Harmon, A. Fisher, C. Winslade, N. Ahmadi, M. Welling, H. Schuessler, H. Walther, "*From Collisions to Cooling: Molecular Physics in a Linear Geometry Ion Trap*", International Conference on Trapped Charged Particles & Fundamental Interactions, Wildbad Kreuth, Germany, August 25-30, 2002.

CONTRIBUTERD CONFERENCE PRESENTATIONS AND SCIENTIFIC TALKS (*cont.*):

34. T.J. Harmon, A.A. Fisher, C. Winslade, N. Ahmadi, and R.I. Thompson, "*Theoretical Studies of Sympathetically Cooled Molecular Ions*", Poster Presentation, International Conference on Atomic Physics, Cambridge, Massachusetts, USA, August 2002.

33. R.I. Thompson, M. Ball, T. Harmon, "*The Rotating Saddle Trap: A Mechanical Analogy of the Paul Trap?",* Contributed Talk, 57th Annual Congress of the Canadian Association of Physicists held in Quebec City, Quebec, June 2-5, (2002).

32. C. Stewart, K. Forrester, C.B. Frank, D. Irvine-Halliday, K. Muldrew, N.G. Shrive, R.I. Thompson, "*Diffraction of Laser Light as a Probe of Ordered Tissue Structure*", Contributed Talk, Joint Session of the 57th Annual Congress of the Canadian Association of Physicists and Photonic North, held in Quebec City, Quebec, June 2-5, (2002).

31. Robert I. Thompson, Amy Fisher, Thomas Harmon, Clayton Winslade, and Nasser Ahmadi, "*Internal Energy Distribution in Sympathetically Cooled Molecular Ions*", Poster Presentation, Annual Meeting of Division of Atomic, Molecular, and Optical Physics of the American Physical Society, held in Williamsburg, Virginia, USA, May 29-June 1, (2002)

30. C. Stewart, K. Forrester, C.B. Frank, D. Irvine-Halliday, K. Muldrew, N.G. Shrive, R.I. Thompson, "*Diffraction of Laser Light as a Probe of Ordered Tissue Structure*", Contributed Talk, The Fourth Northwest Section Meeting of the American Physical Society, Banff, Alberta, Canada, May 17-18 (2002).

29. N. Whaley, D. Knudsen, N. Moazzen-Ahmadi, R.I. Thompson, "*Designing a Rocket-Borne Laser Spectrometer to Measure Atomic and Molecular Oxygen Densities",* The 56th Congress of the Canadian Association of Physicists, held at the University of Victoria, Victoria, B.C., Canada, June 17-20, 2001.

28. A. Szott, M. DeJong, R.I. Thompson, H.A. Schuessler, H. Walther, M. Welling, "*Theoretical Modelling of Charge Transfer Collisions",* The 56th Congress of the Canadian Association of Physicists, June 17-20, (2001) held at the University of Victoria, Victoria, British Columbia, Canada.

27. B. KC, D. Irvine-Halliday, R.I. Thompson, K. Muldrew, C.B. Franck, N.G. Shrive, K. Forrester, "*Optimal Use of Photon Counting Photomultipliers for Biophoton Measurements of Cartilage Tissue and Cultured Fibroblast Cells*", The 56th Congress of the Canadian Association of Physicists, June 17-20, (2001) held at the University of Victoria, Victoria, British Columbia, Canada.

26. A. Fisher, R. Thompson, H. Schuessler, H. Walther, M. Welling, "*Ion Trapping at Low Density Limits"*, Poster presentation at The 56th Congress of the Canadian Association of Physicists, June 17-20, (2001) held at the University of Victoria, Victoria, British Columbia, Canada.

25. X. Zhao, V. Ryjkov, H. A. Schuessler, R. I. Thompson, "*Molecular structure studies of collisionally formed MgC60+ complexes*", NASA Conference, held in Houston, Texas, USA, March (2001).

24. Binod KC, Dave Irvine-Halliday, Ken Muldrew, Cyril B. Frank, Nigel G. Shrive, Robert I. Thompson, and Kevin Forrester, "*A Chemiluminescent Diagnostic Technique to Distinguish Normal and Abnormal Tissues*", presented at BMES 2000, The Biomedical Engineering Society Annual Meeting, held in Seattle, Washington, USA, October 12 - 14 2000.

23. B. KC, K. Forrester, D. Irvine-Halliday, K. Muldrew, C.B. Frank, N. Shrive, and R.I. Thompson, "In-Vitro Measurements of Light Transmission Parallel and Perpendicular to the Collagen Orientations in Tendons**".** Photonics West SPIE Conference, held in San Jose, California, USA, 23-28 January 2000.

22. R.I. Thompson and H.A. Schuessler, "A Linear-Geometry Ion Trap for Studies of Ion-Molecule and Ion-Photon Processes", The First Northwest Section Meeting of the American Physical Society, Vancouver, British Columbia, Canada, May 21-22, 1999.

CONTRIBUTERD CONFERENCE PRESENTATIONS AND SCIENTIFIC TALKS (*cont.*):

21. H.A. Schuessler, A. Kolomenski, X. Zhao, V. Ryjkov, R.I. Thompson, and M. Welling, "Parametric Excitation in a Linear RF Ion Trap", American Physical Society Centennial Meeting, Atlanta, Georgia, USA, March 20-26, 1999.

20. V. Ryjkov, X. Zhao, H.A. Schuessler, and R.I. Thompson,"Mass Spectrometry of Fullerene Ions and Study of Metallofullerene Complex Formation in a Linear Ion Trap", American Physical Society Centennial Meeting, Atlanta, Georgia, USA, March 20-26, 1999.

19. J.D. DeSain, P-Y. Hung, R.I. Thompson, R.F. Curl and G.P. Glass, *The Reaction of NH_2 with NO_2*, Poster presentation at The 15th International Symposium on Gas Kinetics, September 6-10, (1998), to be held in Bilbao, Spain.

18. J.D. DeSain, R.I. Thompson, S.D. Sharma, and R.F. Curl, *The Rotationally Resolved Infrared Spectrum of the ν_1 Stretch of the Allyl Radical*, Rice Quantum Institute Twelfth Annual Summer Research Colloquium, August 21, (1998), held at Rice University, Houston, Texas, USA.

17. R. I. Thompson, L. Marmet, and B.P. Stoicheff. *Nonlinear Generation of VUV Radiation with Counter-Intuitive Pulse Sequences*, Rice Quantum Institute Twelfth Annual Summer Research Colloquium, August 21, (1998), held at Rice University, Houston, Texas, USA.

16. J.D. DeSain, S.D. Sharma, R.I. Thompson, and R.F. Curl, *The Rotationally Resolved Infrared Spectra of the Allyl Radical*, Poster presentation at CAP98, The 53rd Congress of the Canadian Association of Physicists, June 14-17, (1998), held at the University of Waterloo, Waterloo, Ontario, Canada.

15. R.I. Thompson, M. Welling, H.A. Schuessler, and H. Walther, *Optical and Mass-Resolved Studies of Collisionally-Generated MgC_{60}^+ Complexes in a Linear Ion Trap*, The 53rd Congress of the Canadian Association of Physicists, June 14-17, (1998), held at the University of Waterloo, Waterloo, Ont., Canada.

14. J.D. DeSain, S.D. Sharma, R.I. Thompson, and R.F. Curl, *The Rotationally Resolved Infrared Spectrum of the □$_1$ and □$_{13}$ CH_2 Stretch of the Allyl Radical*, 53rd Symposium on Molecular Spectroscopy, June 15-19, (1998), held at Ohio State University, Columbus, Ohio, USA.

13. J. D. DeSain, S. D. Sharma, R. I. Thompson, and R. F. Curl, *The Rotationally Resolved Infrared Spectrum of the ν_1 and ν_{13} CH_2 Stretch of the Allyl Radical*, 215th National Meeting of the American Chemical Society, March 29 – April 2, (1998), held in Dallas, Texas, USA.

12. M. Welling, R. Thompson, and H. Walther, *A Linear Ion Trap for the Collisional-Generation, Purification, and Analysis of MgC_{60}^+ Complexes*, Fullerenes: Chemistry, Physics, & New Directions IX, The 191st Meeting of The Electrochemical Society, May 4-9 (1997), in Montreal, Quebec, Canada.

11. R. Thompson, M. Welling, and H. Walther, *Studies of Trapped MgC_{60}^+: A Possible Technique for Detection and Production of Endo- and Exohedral Complexes?*, Fullerenes: Chemistry, Physics, and New Directions IX, A Symposium of the 191st Meeting of The Electrochemical Society, May 4-9, (1997), in Montreal, Quebec, Canada.

10. M. Welling, R. Thompson, und H. Walther, *Photodissoziation von MgC_{60}^+ Komplexen – Molekülionen-spektroskopie in einer linearen Ionenfalle (Photodisssociation of MgC_{60}^+ Complexes - Molecular Ion Spectroscopy in a Linear Ion Trap)*, Frühjahrstagung der Deutshen Physikalischen Gesellschaft (Spring Meeting of the German Physical Society), March 18-22, (1996), held in Rostock, Germany.

9. R.I. Thompson, B.P. Stoicheff, G.Z. Zhang, and K. Hakuta, *Time-Dependent Effects in Nonlinear Generation of VUV Radiation with Induced Transparency*, ONR/HARC Workshop on Atomic Coherence and Interference, August 6-11, (1994), held in Mt. Crested Butte, Colorado, USA.

CONTRIBUTERD CONFERENCE PRESENTATIONS AND SCIENTIFIC TALKS (*cont.*):

8. R.I. Thompson, L. Marmet, and B.P. Stoicheff, *Effect of a Counter-Intuitive Pulse Sequence in VUV Generation with Electromagnetically-Induced Transparency*, Post-Deadline Paper, International Quantum Electronics Conference 1994, May 8-13, (1994), held in Anaheim, California, USA.

7. K. Hakuta, G.Z. Zhang, M. Ohta, R.I. Thompson, and B.P. Stoicheff, *Electromagnetically-Induced Transparency and Resonant Nonlinear Optical Generation in Atomic Hydrogen*, Optical Society of America 1993 Annual General Meeting, October 3-7, (1993), held in Toronto, Ontario, Canada.

6. B.P. Stoicheff, K. Hakuta, G.Z. Zhang, and R.I. Thompson, *Nonlinear Optical Generation Using Electromagnetically Induced Transparency in Atomic Hydrogen*, Workshop on Atomic Coherence and Interference in Quantum Optics, July 13-18, (1993), held in Crested Butte, Colorado, USA.

5. K. Hakuta, G.Z. Zhang, M. Ohto, R.I. Thompson, and B.P. Stoicheff, *Nonlinear Optical Generation with Electromagnetically Induced Transparency in Atomic Hydrogen*, XIth International Conference on Laser Spectroscopy, June 13-18, (1993), held in Hot Springs, Virginia, USA.

4. R.I.Thompson and B.P. Stoicheff, *Coherence and Interference in Resonantly Enhanced Four-Wave Mixing in Atomic Hydrogen*, Quantum Optics and Laser Science Conference 1993, May 2-7, (1993), held in Baltimore, Maryland, USA.

3. R.I. Thompson and B.P. Stoicheff, *Resonantly Enhanced Four-Wave Sum-Mixing in Atomic Hydrogen at 103 nm*, Canadian Association of Physicists Congress, June 15-17, (1992), held in Windsor, Ont., Canada.

2. T. Efthimiopoulos, P. Dubé, B.P. Stoicheff, and R.I. Thompson, *Stimulated Emission from Ar_2 and Ne_2 in Electrical Discharges with Supersonic Cooling*, Post-Deadline Paper, Quantum Electronics Laser Science Conference, May (1989), held in Baltimore, Maryland, USA.

1. N. Moazzen-Ahmadi, J.W.C. Johns, A.R.W. McKellar, I. Mukhopadhyay, I. Ozier, and R.I. Thompson, *Analysis of the Lowest Lying Degenerate Fundamental of CH_3CD_3*, 44th Symposium on Molecular Spectroscopy, June 12-16, (1989), held at Ohio State University, Columbus, Ohio, USA.

CONFERENCES, SCIENTIFIC MEETINGS, AND SCHOOLS ATTENDED:

42. 2011 Alberta QuantumNano Workshop, Red Deer, Alberta, July 6, 2011.

41. The 66th Congress of the Canadian Association of Physicists, June 13-17, (2011) held in St. John's, NL.

40. 2011 Low Energy Antiproton Physics Conference (LEAP 2011) held in Vancouver, BC.

39. 2011 Winter Nuclear and Particle Physics Conference, February, (2011) held in Banff, AB.

38. The 65th Congress of the Canadian Association of Physicists, June 6-12, (2010) held in Toronto, ON.

37. The 64th Congress of the Canadian Association of Physicists, June 7-10, (2009) held in Moncton, NB.

36. The 63rd Congress of the Canadian Association of Physicists, June 8-11, (2008) held in Quebec City, QC.

35. The 25th International Conference on Photonic, Electronic, and Atomic Collisions, July 25-31, 2007, held in Freiburg, Germany.

34. The 62nd Congress of the Canadian Association of Physicists, June 16-20, (2007) held in Saskatoon, SK.

33. The Joint Meeting of the Division of Atomic, Molecular, and Optical Physics (American Physical Society) and the Division of Atomic and Molecular Physics (Canadian Association of Physicists), June 6-9, (2007), held in Calgary, AB, Canada.

32. The 61st Congress of the Canadian Association of Physicists, June 11-14, (2006) held in St. Catherine's ON.

CONFERENCES, SCIENTIFIC MEETINGS, AND SCHOOLS ATTENDED (cont.):

31. The Annual Meeting of the Division of Atomic, Molecular, and Optical Physics of the American Physical Society, May 2006.

30. Annual TITAN Collaboration Meeting, June 10-11 (2005), held at TRIUMF, Vancouver, BC.

29. The 60th Congress of the Canadian Association of Physicists, June 6-8, (2005) held in Vancouver, BC.

28. The 59th Congress of the Canadian Association of Physicists, June 12-16, (2004) held in Winnipeg, MB.

27. The Joint Meeting of the Division of Atomic, Molecular, and Optical Physics (American Physical Society) and the Division of Atomic and Molecular Physics (Canadian Association of Physicists), May 24-29, (2004), held in Tucson, Arizona, U.S.A..

26. The First Banff Cold Atom Meeting, Feb 20-22, (2004), held in Banff, Alberta, Canada.

25. The 58th Congress of the Canadian Association of Physicists, June 8-11, (2003) held in Charlottetown, PEI.

24. Annual TITAN Collaboration Meeting, June 2-3 (2003), held at TRIUMF, Vancouver, BC.

23. 2003 NSERC Large Subatomic Physics Project Collaborations Meeting, Ottawa, Ontario, Feb. 1, 2003.

22. International Conference on Trapped Charged Particles & Fundamental Interactions, Wildbad Kreuth, Germany, August 25-30, 2002.

21. The 57th Congress of the Canadian Association of Physicists, June 2-5, (2002) held in Quebec City, QC.

20. The Annual Meeting of the Division of Atomic, Molecular, and Optical Physics (American Physical Society), May 28-June 1, (2002), held at the College of William and Mary, Williamsburg, Virginia, USA.

19. Northwest Section Meeting of the American Physical Society, Banff, Alberta, May 17-18, 2001.

18. Workshop on TRIUMF-TRAP: A Facility for Exotic and Highly Charged Ion Beams at ISAC, April 11-13, (2002), held at TRIUMF, Vancouver, British Columbia, Canada.

17. The 56th Congress of the Canadian Association of Physicists, June 17-20, (2001) held in Victoria, BC.

16. Canadian Institute for Advanced Research Meeting on Quantum Computation, June 20-21, (2001), held at the Fields Institute in Toronto, Ontario, Canada.

15. The Joint Meeting of the Division of Atomic, Molecular, and Optical Physics (American Physical Society) and the Division of Atomic and Molecular Physics (Canadian Association of Physicists), May 15-20, (2001), held in London, Ontario, Canada.

14. The Atlantic Undergraduate Physics and Astronomy Conference, Feb. 2-3, (2001), held at Acadia University, Wolfville, Nova Scotia, Canada.

13. The 55th Congress of the Canadian Association of Physicists, June 4-7, (2000), held at the York University, Toronto, Ontario, Canada.

12. The First Northwest Section Meeting of the American Physical Society, Vancouver, British Columbia, Canada, May 21-22, 1999.

11. Rice Quantum Institute Twelfth Annual Summer Research Colloquium, August 21, (1998), held at Rice University, Houston, Texas, USA.

10. The 53rd Congress of the Canadian Association of Physicists, June 14-17, (1998), held at the University of Waterloo, Waterloo, Ontario, Canada.

9. *Fullerenes: Chemistry, Physics, and New Directions IX*, A Symposium of the 191st Meeting of The Electrochemical Society, May 4-9, (1997), in Montreal, Quebec, Canada.

CONFERENCES, SCIENTIFIC MEETINGS, AND SCHOOLS ATTENDED (cont.):

8. ONR/HARC Workshop on Atomic Coherence and Interference, August 6-11, (1994), held in Mt. Crested Butte, Colorado, USA.

7. International Quantum Electronics Conference 1994 and Conference on Lasers and Electro-Optics 1994, May 8-13, (1994), held in Anaheim, California, USA.

6. Optical Society of America 1993 Annual General Meeting, October 3-7, (1993), held in Toronto, Ontario, Canada.

5. Quantum Optics and Laser Science Conference 1993 and Conference on Lasers and Electro-Optics 1993, May 2-7, (1993), held in Baltimore, Maryland, USA.

4. Canadian Association of Physicists 47th Congress, June 15-17, (1992), held in Windsor, Ontario, Canada.

3. Ontario Laser and Lightwave Research Centre, Summer School Three, *Ultra-fast and Super-intense Laser Technology, Science and Applications*, May 21-23, (1991), held in Toronto, Ontario, Canada.

2. Ontario Laser and Lightwave Research Centre, Summer School Two, *Lasers for the 90's*, May 28-31, (1990), held in Toronto, Ontario, Canada.

1. Joint Congress: 43rd Congress of the Canadian Association of Physicists and Annual Meetings of the Divisions of Nuclear Physics and Atomic, Molecular and Optical Physics of the American Physics Society, June 20-22, (1988), held at the Université de Montréal, Montreal, Quebec, Canada.

RESEARCH SCIENTIST SUPERVISION

Post-Doctoral Scientist / Research Associate Supervision (*current*)

Dr. Daria Ahrensmeier, *Physics Education Development and Research*, August 2008 – Present.
Dr. Mahin Afshari, *Physics Education Development and Research*, Sept. 2010 – April 2011.

Graduate Student Degree Supervision at the University of Calgary

(Note: [a] indicated an Alberta Ingenuity Scholarship Recipient
[n] indicated an NSERC Post-graduate Scholarship recipient.)

Degrees in Progress:

Tm Friesen[n], Ph.D. Student (Supervisor), Fall 2008 – present.
Research Topic: *The ALPHA Experiment: Spectroscopic and plasma mode studies of antimatter.*

Michael Cummings, Ph.D. Student (Supervisor), January 2006 – present.
Research Topic: *Computational studies of trapped ion systems*

Jeremie Choquette, Ph.D. Student (Co-supervisor, *supervised by K.-P. Marzlin*), Fall 2008 – present.
Research Topic: *Theoretical Quantum Optics: Superradiant Surface Plasmons*

Completed Degrees:

Ph.D.

Richard Hydomako[a,n], Ph.D. Student (Supervisor, *co-supervised by M. Fujiwara*), September 2007 – 2011.
Research Topic: *The ALPHA Experiment: Detector physics and the search for trapped anti-hydrogen*
Final thesis submission to the Faculty of Graduate Studies: September2011.
Presently a post-doctoral scientist with Advanced Applied Physics Solutions, Vancouver BC..

Louis Poirier[n], Ph.D. Student (Supervisor, *co-supervised by D. Shefanyshyn, Kinesiology*), 2006 - 2011.
Thesis Title: *Ice friction in the sport of bobsleigh*
Final thesis submission to the Faculty of Graduate Studies August 2011.
Presently a post-doctoral scientist with NRC, Ottawa, ON..

Ziad AbuSara, (*co-supervisor R.I. Thompson, supervisor: N. Moazzen-Ahmadi*) Sept.2001 to Dec. 2006
"***Laser spectroscopy of CCO and jet spectroscopy of isotopomers of He-OCS and higher clusters***"
Final thesis submission to the Faculty of Graduate Studies December, 2006.
Presently a post-doctoral researcher in Kinesiology at the University of Calgary.

M.Sc.

Richard Hydomako, (*supervisor; R. I. Thompson*) Sept. 2005 – Sept.2007
"***Modelling of antihydrogen formation and the commissioning of the ALPHA Antihydrogen Apparatus***"
Final thesis submission to the Faculty of Graduate Studies: Sept. 13, 2007
Presently a Ph.D. student in the Dept. of Physics and Astronomy, University of Calgary.

Mehdi Deghany, (*co-supervisor: R.I. Thompson, supervisor: N. Moazzen-Ahmadi*) Sept. 2004 – Dec. 2006
"***Time –resolved spectroscopy of some transient molecules***"
Final thesis submission to the Faculty of Graduate Studies: December 2006
Completed his Ph.D. at the University of Calgary in 2010, now a PDF.

Louis Poirier, (*supervisor R. I. Thompson*), Sept. 2003 – January 2006
"***Physics with micro and nanosecond pulses: Velocity control of MHz pulses in periodic media and pulsed lasers for trapped ion spectroscopy***"
Final thesis submission to the Faculty of Graduate Studies January 2006.
Presently a Ph.D. student in the Dept. of Physics and Astronomy, University of Calgary.

Jeremie Choquette (*supervisor R. I. Thompson, co-supervisoer: N. Moazzen-Ahmadi*) Sept. 2002-Aug.2005
"***Ion Trapping in the Low Mass Region***"
Final thesis submission to the Faculty of Graduate Studies September, 2005.
Presently a Ph.D. student in the Dept. of Physics and Astronomy, University of Calgary.

Thomas Harmon, (*supervisor: R.I. Thompson, co-supervisor: N. Moazzen-Ahmadi*) Sept. 2001 – Sept. 2003.
"Instability Heating of Sympathetically Cooled Ions in a Linear Paul Trap"
Final Thesis Submission to the Faculty of Graduate Studies, September 19, 2003.
Left Calgary to become a physics teacher in the United Kingdom

Aaron Szott, (*supervisor: N. Moazzen-Ahmadi, co-supervisor: R.I. Thompson*), Sept. 2000 – January 2003.
"Frequency Analysis of the ν_9 band of CH_3CH_3: Experiment and Ab Initio Calculations"
Final Thesis Submission to the Faculty of Graduate Studies: January 24, 2003
High school physics teacher in Calgary, AB

Amy A. Fisher (*supervisor: R.I. Thompson*), September 1999 – December 2001
"*Ion Trapping at Low Density Limits*"
Final Thesis Submission to the Faculty of Graduate Studies: December 14, 2001
Graduate student in the History of Science and Technology Program at the University of Minnesota

Graduate Student Physics Education Research and Development Supervision

(Note: these projects were completed in the form of full or half Graduate Assistantship-Teaching units):

Randall Stafford, "*Labatorial Implementation in Physics 211/221/223: Lab Development and TA Training"*, full units, 2007-08, 2008-09 and 2009-10, half unit in Fall 2010.

Laureline Sangalli, "*Labatorial Implementation in Physics 211/221/223: Lab Development"*, half unit, 2007-08.

Leila Borveyah, "*Labatorial Implementation in Physics 211/221/223: Lab Development"*, full unit, 2008-09

Geoff Holmes, "*Labatorial Implementation in Physics 211/221/223: Data Analysis"*, half unit, 2009-10

Graduate Student Research Project Course Supervision at the University of Calgary

Completed Projects:

Michael De Jong, Physics 699, "Fullerene-Mg^+ Interaction Potential Models", Winter 2001.
Graduate Student, Applied Mathematics, University of Western Ontario, starting Jan.1, 2003.

Undergraduate Summer Student Supervision at the University of Calgary

(*Italicised second line gives last known position or location of former summer students.)*

In Progress

Lohrasp Seify, University of Calgary, NSERC USRA Summer Student, 2010 and 2011
Project topic: "*Computational studies of evaporative cooling in a linear Paul trap"*

Completed Projects:

Jared Stang, University of Toronto, NSERC USRA Summer Student, 2008
Undergraduate Student, Mathematical Physics, University of Toronto
Phillip Ashby, University of Calgary, Summer Student, 2006
Graduate Student, Department of Physics, McMaster University
Daniel Foster, University of Calgary, Summer Student, 2005
Graduate Student, Department of Physics, University of Alberta
Ian Nygren, University of Calgary, NSERC Summer Student, 2004
M.Sc. Student, Department of Physics and Astronomy, University of Calgary
Simon Poole, University of Calgary, NSERC Summer Student, 2004
M.Sc. Student, Department of Physics and Astronomy, University of Calgary
Louis Poirier, Laval University, July-August, 2003
PhD Student, Department of Physics and Astronomy, University of Calgary
Marc Lebel, University of Calgary, NSERC Summer Student, 2002
Graduate Student, Department of Physics, University of Alberta.
Jeff Snyder, University of Calgary, NSERC Summer Student, 2002, Summer Student May 2003
Graduate Student, Department of Physics and Astronomy, University of Western Ontario.
Clayton Winslade, University of Calgary, NSERC Summer Student 2002, Summer Student 2001
M.Sc. Student, Guelph-Waterloo Physics Institute, University of Guelph.
Scott Beattie, Dalhousie University, NSERC Summer Student, 2001
PhD Student, Department of Physics and Astronomy, York University
Thomas Harmon, University of Calgary, 2001
Physics teacher, United Kingdom
Cody Stewart, University of Calgary, 2001
Unknown
Kyle Degenhardt, University of Calgary, 2000
Unknown
Aaron Szott, University of Calgary, 2000
High School Physics Teacher, Calgary, AB, Canada
Niel Whaley, U. of Calgary, NSERC Summer Student 2000 (co-supervised with N. Ahmadi & D. Knudsen)
Unknown
Austen Chongpison, University of Calgary, 1999, 2000
Scientist, Quantum Magnetics, San Diego, California, USA
Byron Desnoyers Winmill, University of Calgary, 1999 (50% time)
Astronomy Marker/Teaching Assistant, Toronto, ON, Canada
Jason Law, University of Waterloo Co-op Student, 1999 (co-supervised with H. Laue)
High School Teacher, Sir Wilfrid Laurier Collegiate Institute, Scarborough, Ontario, Canada

Undergraduate Project Course Student Supervision at the University of Calgary

In Progress or Scheduled

Lohrasp Seify, PHYS.598 "Computational studies of evaporative cooling in a linear Paul trap", 2010-11.

Completed Projects:

Mitch Preston, Physics 599, "A search for the most accurate and fastest computational tools for the studies of the evolution of trapped ion mixtures in RF electric ion traps", 2006

Phillip Ashby, Physics 598, "Computational Studies of Sympathetic Cooling in RF Electric Ion Traps", 2005-06

Daniel Foster, Physics 598, "Laboratory studies of trapped ion evolution", 2004-05.

Aviv Fried*, Physics 598, "Computational studies of heating and cooling of trapped ions", 2003-04

Jeff Snyder*, Physics 599, " q-scan ion trap mass spectrometry of low mass ions", 2002-2003

Clayton Winslade, Physics 598, "Spectroscopy of Sympathetically Laser Cooled CO^+", 2001-02.

Alyssa Moldowan, Physics 599, "An External Cavity Diode Laser for Laser Cooling", Winter 2002. (Co-Supervisor: David Fry)

Shayna Eklove, Physics 599, "Reading Course in Nuclear, Atomic, and Molecular Physics", Winter 2002. (Co-Supervisor: Michael Wieser)

Kyle Degenhardt, Physics 598, "A Frequency Stabilized Diode Laser System for Atom Trapping", 2000-01.

Austen Chongpison, Physics 599.03, "DC-Field Effects in Nonlinear Mixing of Radiation", Winter 2000.

Aaron Szott, Physics 599.03, "The Massey Criterion: $Mg^+ + C_{60}$ Charge Transfer Collisions", Winter 2000.

Byron Desnoyers Winmill, Physics 599.01, "Lasers", Winter 1999.

* Undergraduate Research Prize recipient

TEACHING

TEACHING EXPERIENCE: Course Instructor (University of Calgary)

Course: University of Calgary Physics 615: Advanced Quantum Mechanics I
Session: Fall 1999, Winter 2006, Fall 2006
Class Size 8 registered, 19 Registered, 8 Registered
Duties: Lecturer and Course Supervisor
Contact Time: Lectures: 38 hours

Course: University of Calgary Physics 571: Laser Physics
Sessions: Winter 2003, Winter 2005
Class Size: 10, 4
Duties: Course Designer, Lecturer, and Course Supervisor
Contact Time Lectures: 39 hours

Course: University of Calgary Physics 543: Quantum Mechanics II
Sessions: Fall 1999, Fall 2000, Fall 2002, Fall 2003, Fall 2004, Fall 2005, Fall 2006, Fall 2007, Fall 2008, Fall 2009.
Class Size: 21 (+ 2 auditing), 14, 19 (+ 1 auditing), 13, 15, 13, 23, 13
Duties: Lecturer and Course Supervisor
Contact Time Lectures: 37 hours

Course: University of Calgary Physics 443: Quantum Mechanics I
Sessions: Winter 2000, Winter 2001, Winter 2002, Winter 2003, Winter 2004
Class Size: 17 plus 1 auditing graduate student, 34 , 30, 21, 17
Duties: Lecturer and Course Supervisor
Contact Time Lectures: 39 hours, Tutorials 13 hours (in 2000 only)

Course: University of Calgary Physics 259 Electricity and Magnetism (for students in Engineering)
Session: Winter 1999
Class Size: Approximately 140
Duties: Lecturer and Tutorial Leader
Contact Time Lectures: 39 hours, Tutorials: 11 hours

Course: University of Calgary Physics 255 Electromagnetic Theory I
Session: Winter 2012
Class Size: Approximately 70
Duties: Lecturer and Course Coordinator
Contact Time Lectures: 39 hours

Course: University of Calgary Physics 020/120: Physics Skills I (Block Course)[1]
Sessions: Fall 1999 (unofficial course), Fall 2000, Fall 2001, Fall 2002, Fall 2003, Fall 2004, Fall 2005, Fall 2006, Winter 2008, Winter 2009, Winter 2010
Class Size approx. 18, 31, 23, 23, 20, 21, 26, 28, 15
Duties: Lecturer, Course Supervisor, and Course Designer
Contact Time: Lectures: 8 hours, Labs: 8 hours

[1] This course was renumbered as PHYS.120 in 2006, but remained a block course. It moved to 1st-year Winter term in 2007-08.

TEACHING EXPERIENCE: Other Duties (University of Calgary)

Course: University of Calgary Physics 677: Implementations of Quantum Information Science
Sessions: Winter 2005, Fall 2005, Fall 2007
Duties: Guest Lecturer (Course Instructor: B. Sanders)

Course: University of Calgary Physics 675: Special Topics in Laser and Optical Sciences
Sessions: Fall 2002
Class Size 2
Duties: Co-Instructor (with D. Feder and R. Sreenivasan)

Course: University of Calgary Physics 598: Research in Physics
Sessions: 2000-01, 2001-02, 2002-03, 2003-04, 2004-05, 2005-06, 2006-07, 2007-08
Class Size 3, 2, 3, 4, 3, 11, 10, 12.
Duties: Course Coordinator and Course Designer

Course: University of Calgary Physics 599/Applied Physics 599: Independent Study
Sessions: Fall 2001, Winter 2002, Spring 2002, Fall 2002, Winter 2003, Fall 2003, Winter 2004
Class Size 3/1, 8/4, 1/0, 3/1, 12/0, 2/0, 12/1
Duties: Course Coordinator

Course: University of Calgary Physics 211 Mechanics
Session: Fall 1998
Class Size approx. 20
Duties: Substitute tutorial leader
Contact Time: 110 minutes / per session

Position Title: Teaching Assistant, Tutorial Leader for "The Way of Physics"
Institution: Dept. of Physics and University College, University of Toronto, Toronto, Ontario, Canada
Supervisor: Prof. J. D. Prentice
Dates: September 1990 to May 1991 and September 1992 to May 1993
Duties: Tutorial Group Leader

Position Title: Teaching Assistant, Laboratory Demonstrator for 1st- and 2nd-Year Physics Courses
Institution: Department of Physics, University of Toronto, Toronto, Ontario, Canada
Supervisors: Dr. J. B. Vise and Dr. D. M. Harrison
Dates: 1st-Year Course: September 1987 to April 1988 and September 1988 to April 1989
2nd-Year Course: September 1989 to April 1990 and September 1991 to April 1992
Description: Laboratory Section Instructor

SIGNIFICANT WRITTEN TEACHING MATERIALS

R.I. Thompson, "***Applications of Quantum Mechanics***", Course Notes used in place of a Textbook in Physics 543: Quantum Mechanics II (Fall 2002, Fall 2003), 253 typed pages.

R.I. Thompson, **"*The Tools of Quantum Mechanics*",** Course Notes used in place of a Textbook in Physics 443: Quantum Mechanics I (Winter 2002, Winter 2003, Winter 2004), 324 typed pages.

Demonstrator's Manual, 20 to 30 pages each, Physics 269 (Fall 1999, Updated Fall 2001), Physics 213 (Winter 2000), Physics 223 (Winter 2000), and Physics 259 (Winter 2000).

UNIVERSITY OF CALGARY PHYSICS 598/599/699 REPORT / PRESENTATION EVALUATION

Winter 2008, 12 students
Winter 2007, 10 students
Winter 2006, 11 students
Winter 2005, 3 students
Winter 2004, 16 students, 17 projects
Winter 2003, 3 students
Spring 2002, 1 Student
Winter 2002, 11 Students, 12 projects
Fall 2001, 4 Students
Winter 2001, 8 Students
Fall 2000, 1 Student
Winter 2000, 7 Students, 8 projects
Fall 1999, 2 Students

NEW COURSE DEVELOPMENT

Physics 020/120 Physics Skills I: Basic Laboratory and Study Skills (Block Course)

New course that I proposed, designed and taught in both a trial version in 1999 and its regular form since its inception into the Calendar from 2000 to 2008. In the last two years I have taught ¼ of this jointly taught course.

Physics 211/221 Mechanics
Physics 223 Introductory Electromagnetism, and Thermal Physics
Physics 259 Electricity and Magnetism for students in Engineering

Although I did not develop these courses, from 2007-08 through the present I have led a group of faculty, a post-doctoral scientist, and graduate students that has undertaken a complete restructuring of the small group teaching component of these courses, replacing the previous laboratory and tutorial sections with labatorials. Labatorials are a replacement for the laboratory and tutorial components in these large, multi-section physics courses for non-physics students. They integrate experiments, exercises with computer simulations, demonstrations, and calculations in a focused effort to reinforce concepts developed in the course lectures. In addition to developing the labatorials, this initiative is collecting data to assess the effectiveness of these new course components in terms of student performance, engagement, and satisfaction.

Physics 471 Optics (Core Undergraduate Course)

New course that I proposed and for which I wrote the initial course description. I was also extensively involved in the design and construction of the laboratory space for this course, as well as the laboratory manual.

Physics 598 Research in Physics

New course that I proposed, designed and coordinated in 2000-01, 2001-02, 2002-03, 2003-04, 2004-05, 2005-06, 2006-07, and 2007-08.

Physics 571 Laser Physics (Senior Undergraduate Course) (*in progress*)

New course that I proposed, designed and taughr in its first semester in Winter 2003.

Physics 671 Atomic and Molecular Spectroscopy (Graduate Course) (*in progress*)

New course that I proposed and for which I wrote the initial course description.

Physics 673 Quantum Electronics and Nonlinear Optics (Graduate Course) (*in progress*)

New course that I proposed and for which I wrote the initial course description.

Physics 675 Special Topics in Laser and Optical Science (Graduate Course) (*in progress*)

New reading course that I proposed and which was run, on Bose-Einstein Condensation for the first time in the Fall of 2002, with David Feder, Ranga Sreenivasan and myself instructing.

SERVICE

ADMINISTRATIVE APPOINTMENTS

Member (General Faculties Committee Elected Representative), University of Calgary Board of Governors, Ministerial Appointment from June 21, 2011-June 20, 2014.
University of Calgary Representative, Board of Management, TRIUMF National Laboratory, 2009 – 2012.
Head of Department, Department of Physics and Astronomy, University of Calgary, 2010-2015.
Assistant Head of Department, Department of Physics and Astronomy, 2007-2010.
Undergraduate Program Director, Department of Physics and Astronomy, 2007-2010.
Chair of Graduate Studies, Department of Physics and Astronomy, 2003 - 2007.

EXTERNAL SERVICE

National and International Service:

Senior Co-Chair, Environmental Safety and Security Committee, TRIUMF National Laboratory, 2011-2012.
Co-Chair (with B. Sanders), Local Organizing Committee, 2012 Canadian Association of Physicists Annual Congress, to be held June 2012, in Calgary , Alberta, Canada, 2010 – 2012.
Director of Student Affairs, Canadian Association of Physicists, 2008 – 2012.
Chair, Committee on Student Activities, Canadian Association of Physics, 2008 – 2012.
Member of the Editorial Board, Physics in Canada, 2007 – present.
Member of the steering committee for the NSERC/GDC/iCORE Industrial Research Chair in Quantum Cryptography and Communication (W. Tittel), 2010-11.
Member, Local Organizing Committee, The Ninth International Conference on Quantum Communication, Measurement and Computing (QCMC), Calgary, Alberta, August 19-24, 2008.
Member, Local Organizing Committee, 2011 Low Energy Anti-proton Physics Conference (LEAP 2011), Held in Vancouver BC, April 27-May 1, 2011, 2010-2011.
Member, Manuscript Review and Refereeing Committee, LEAP 2011 Refereed Proceedings, 2011.
Division Past-Chair, Division of Physics Education, Canadian Association of Physicists, 2009 - 2011.
Division Chair, Division of Physics Education, Canadian Association of Physicists, 2007 June - 2009 June.
Division of Physics Education Representative, 2007 Canadian Association of Physicists Council, 06.17.07
Division Vice-Chair, Division of Physics Education, Canadian Association of Physicists, June‘06 – June‘07.
Canadian Representative, International Union of Pure and Applied Physics (IUPAP) Commission C15 on Atomic and Molecular Physics, 2005 November - 2011 November
Member, Canadian National IUPAP Liaison Committee, 2005 November - 2011 November
Secretary-Treasurer, Division of Atomic, Molecular, and Optical Physics (DAMOPC, formerly DAMPhi and DAMP), Canadian Association of Physicists, 2000-2013.
Chair, Local Organizing Committee, 2007 Joint Meeting of the Division of Atomic & Molecular Physics, and Photon Interactions of CAP and the Division of Atomic, Molecular, and Optical Physics of APS, June 2007, in Calgary, Alberta, Canada, 2002 – 2007.
Member (Ex Officio), Program Committee, Joint Meeting of the Division of Atomic & Molecular Physics and Photon Interactions of CAP and the Division of Atomic, Molecular, and Optical Physics of APS, May 2007, Calgary, Alberta.
Local Co-Coordinator, 2007 DAMOP/DAMPhi Educators' Day - 2006 May - 2007 September
Member of the Editorial Board and Associate Editor (Atomic and Molecular Physics – Experimental), Canadian Journal of Physics, 2002 – 2007.
Alberta Ingenuity Fund Graduate Fellowships Committee, 2006 January - 2006 March
External Reviewer, Ontario Council of Graduate Studies (OCGS) periodic appraisal of the graduate program of the Physics Department of Lakehead University. December 2005-March 2006.

External Consultant/Member, UBC CFI New Initiatives Grant Review Panel - November 2005 - December 2005.

Education Roundtable Panel Member (Canadian Representative), The Second Canadian-American-Mexican Graduate Student Conference, Horton Grand Hotel, August 2005.

Ethics Roundtable Panel Member (Canadian Representative), The Second Canadian-American-Mexican Graduate Student Conference (CAM2005), Horton Grand Hotel, August 2005.

Co-Organizer, 2004 Banff Cold Atom Meeting, Banff Centre, Banff Alberta, Canada, Feb. 20-22, 2004.

Member, DAMP Sessions Program Committee, 57th Congress of the Canadian Association of Physicists, June 2002, Laval University, Quebec City, Quebec, Canada.

Member, DAMP Sessions Program Committee, 56th Congress of the Canadian Association of Physicists, June 2001, Victoria, British Columbia, Canada.

Member, Program Committee, Joint Meeting of the Division of Atomic and Molecular Physics of CAP and the Division of Atomic, Molecular, and Optical Physics of APS, May 2001, London, Ontario.

Guest Editor, Special Festschrift Issue to commemorate the 75th Birthday of Professor Boris P. Stoicheff, Canadian Journal of Physics **78** (5/6), May-June (2000).

Local and Regional Service:

Presenter (with Dale Makar, Montgomery Junior High School), "*Light and Optical Systems*", Making Connections Workshop for Teachers, Calgary Science Network, (attendance 29), Sept. 13, 2007.

Presenter (with Dale Makar, Montgomery Junior High School), "*Light and Optical Systems*", Making Connections Workshop for Teachers, Calgary Science Network, (attendance 30), September 2005.

Open House Speaker, Rothney Astrophysical Observatory, "The Nature of Light: Light, Lenses, and Mirrors", July 2006

Open House Speaker, Rothney Astrophysical Observatory, "*The Nature of Light*", August 2005

Guest Speaker, "*Light, Lasers, and the world around us*", 55-minute presentations to 2 Grade 8 groups of ~90 students, F.E. Osborne Junior High School, (Teacher: P. Lin) Calgary, AB, June 11, (2004).

Presenter and on campus host, Grade 8 Science Class Field Trip "*Light and Optics*", 21 students and 3 parents from Menno Simons Christian School (Teacher: Vern Unrau), Feb. 26, (2004).

Guest Speaker, "*Light, Lasers, and the world around us*", 50-minute presentations to 5 Grade 8 classes of 30 students, Robert Warren Junior High School, (Teacher: L.Stackhouse) Calgary, AB, Feb.17, (2004).

Guest Speaker, "*Light and Optical Systems*", 90-minute lab/presentation to 2 Grade 8 classes of 30 students each at St. James Catholic School (teacher B. Munn), Calgary, Alberta, Jan. 8, (2004).

Guest Speaker, "*Light, Lasers, and the world around us*", 60-minute presentation to a Grade 8 class of 26 students at HD Cartwright Junior High School (teacher M. Shpur), Calgary, Alberta, Oct. 28, (2003).

Presenter (with Ian Strachan, Calgary School Board), "*Light and Optical Systems*", Making Connections Workshop for Teachers, Calgary Science Network, (attendence 23), Sept.11 , 2003.

Guest Speaker, "*Light, Lasers, and the world around us*", 40-minute presentation to 3 Gr. 8 classes of 20-30 students each at Ascension of our Lord School, Calgary, AB, March 12, (2003).

Presenter and on campus host, Grade 8 Science Class Field Trip "*Light and Optics*", 22 students and 3 parents from Menno Simons Christian School (Teacher: Vern Unrau), February 5, (2003).

Presenter (with C. Szata, Calgary Catholic School Board), "*Light and Optical Systems*", Making Connections Workshop for Teachers, Calgary Science Network, (attendence 23), Sept.16 , 2002.

Presenter (with C. Szata, Calgary Catholic School Board), "*Light and Optical Systems*", Making Connections Workshop for Teachers, Calgary Science Network (Attendance: 30), May 15, 2002.

Job Shadow Host, Scott McCaig (Strathcona-Tweedsmuir School Endeavours 2001 Program), Nov. 2001.

Co-presenter, "*Light and Optical Systems Session*", Elementary and Junior High Science Symposium 2001, Making Connections, Calgary Science Network, October 1, 2001.

Accuracy Reviewer, Addison Wesley *Science in Action 8*, Light and Optical Systems Unit, February 2001.

CONFERENCE SESSION CHAIR:

Conference Session Chair, "*Educational Workshop*", Division of Physics Education, Canadian Association of Physicists Congress, on June 14, 2011.

Conference Session Chair, "*Atomic Physics*", 2011 Low Energy Antiproton Physics Conference (LEAP 2011), April 30, 2011.

Conference Session Chair, "*Teaching Physics to a Wider Audience*", Division of Physics Education, Canadian Association of Physicists Congress, on June 8, 2010.

Conference Session Chair, "*New Faculty Workshop*", Division of Physics Education, Canadian Association of Physicists Congress, on June 10, 2010.

Conference Session Chair, "*Teaching with Technology*", Division of Physics Education, Canadian Association of Physicists Congress, on June 10, 2008.

Conference Session Chair, "*PHYSICS DEMONSTRATIONS AND STUDENT ENGAGEMENT*", Division of Physics Education, Canadian Association of Physicists Congress, on June 18, 2007.

Conference Session Chair, "*Atomic & molecular spectroscopy and dynamics II / spectroscopie et dynamique des atomes et molecules II*", Canadian Association of Physicists Congress, on June 19, 2007

Co-Chair (with Prof. A. Griffin, University of Toronto), "*Cold Atom Symposium"*, Joint Symposium of the Division of Atomic and Molecular Physics and the Division of Condensed Matter and Materials Physics, Canadian Association of Physicists, June 2, 2002 in Quebec City, Quebec, Canada.

Co-convenor and co-chair (with Prof. J. Young, UBC), Atomic, Molecular and Optical Physics, Northwest Regional Meeting of the American Physical Society, May 17 2002, Banff, Alberta, Canada.

Conference Session Chair,*"Progress in Physics with Cooled and Trapped Atoms II",* The 56th Congress of the Canadian Association of Physicists, June 19, (2001) held at the University of Victoria, Victoria, British Columbia, Canada.

Conference Session Co-Chair (with S. Harris, Stanford), "*From Atom Coherences to Slow Light*", The Joint Meeting of the Division of Atomic, Molecular, and Optical Physics (American Physical Society) and the Division of Atomic and Molecular Physics (Canadian Association of Physicists), May 16, (2001), held in London, Ontario, Canada.

Journal and Grant Application Referee Service

Canadian Journal of Physics (1999 - present)
Canadian Journal of Chemistry (2004)
Canadian Foundation for Innovation (2007, 2008)
Natural Sciences and Engineering Research Council (2007 - present)
Physics in Canada (2008-present)
External evaluator for tenure/promotion applications: UBC 2011

INTERNAL SERVICE

UNIVERSITY COUNCIL AND COMMITTEE MEMBERSHIP:

University of Calgary:

University Level Service:

Member, University of Calgary General Faculties Council, July 2011-June 2014.
Member, University of Calgary Academic Program Committee (APC), 2009 – 2011.
Member, University of Calgary Continuous Learning Committee (CLC), 2009 – 2011.

Faculty Level Service

Member, Dean's Advisory Committee, Faculty of Science, University of Calgary, 2010-present.
Member, Faculty Promotions Committee, Faculty of Science, University of Calgary, 2010-present.
Chair, Faculty of Graduate Studies Appeals Committee, 2010 – 2011.

Vice-Chair, Faculty of Graduate Studies Appeals Committee, 2009 – 2010.
Member, Faculty of Graduate Studies Appeals Committee, 2007-2011.
Member, RAISE (Research And Instruction in Science Education), Faculty of Science, University of Calgary, 2008-present.
Member, Nanoscience B.Sc. Minor Program Development Committee, Faculty of Science, 2008-present.
Faculty of Science Representative, Bachelor of Health Science Curriculum Committee, 2007-2009.
Member, Faculty of Graduate Studies Striking Committee, 2006-2009.
Member, Faculty of Graduate School (FGS): Graduate Coordinator Interview Committee for Decanal Candidates, 2007.
Faculty Representative, Advisory Selection Committee on the Headship of the Department of Physics and Astronomy, November,2004 - February,2005.
Departmental Representative, Advisory Selection Committee on the Headship of the Department of Physics and Astronomy, Faculty of Science, 1999 – 2000.

Department Level Service

Chair, Head's Advisory Committee, Department of Physics and Astronomy, University of Calgary, 2010-present.
Chair, Search Committee, Canada Research Chair Nominee in Radio Plasma Physics, Department of Physics and Astronomy, 20010-11.
Member, Space Working Group, Department of Physics and Astronomy, University of Calgary, 2010.
Member, Administrator Hiring Committee, Dept. of Physics and Astronomy, University of Calgary, 2010.
Ex officio (Assistant Head) Member of the Head's Advisory Committee, Dept. of Physics & Astronomy, 2007-10
Ex officio member (Undergraduate Program Director) of the Departmental Undergraduate Affairs Committee, Department of Physics and Astronomy, 2007-10.
Member of the Departmental Outreach Committee, Department of Physics and Astronomy, 2007-10.
Member of the Faculty of Science Curriculum Committee, Department of Physics and Astronomy, 2007-10.
Member, Department Manager Hiring Committee, Department of Physics and Astronomy, 2009.
Chair, Hiring Committee, Joint University of Calgary / National Institute for Nanotechnology (NINT) Faculty Position, 2008 – 2009.
Chair, Teaching and Learning Task Force, Department of Physics and Astronomy, 2008-2009.
Member, Community Building Committee, Department of Physics and Astronomy, 2008.
Chair, Hiring Committee, Theoretical Quantum Optics Faculty Position, Department of Physics and Astronomy, 2008.
Chair, Teaching Laboratory Development Committee, Dept. of Physics & Astronomy, 2006-present.
Member, Radiation Oncology Residency Committee, Dept. of Medical Physics, Tom Baker Cancer Clinic, 2007-present.
Chair of the Graduate Affairs Committee, Department of Physics and Astronomy, 2003 - 2007.
Chair of the Graduate Scholarships and Admission Committee, Department of Physics and Astronomy, 2003 - 2007.
Member of the Radiation Oncology Graduate Affairs Committee, Dept. of Physics and Astronomy, 2003 - 07.
Member of the Council of the Faculty of Graduate Studies, Department of Physics and Astronomy, 2003 - 07.
Faculty Representative, Graduate Liaison Committee, Department of Physics and Astronomy, 2003 - 2007.
Ex officio Member of the Head's Advisory Committee, , Department of Physics and Astronomy, 2006 - 07.
Member, Hiring Committee, Tenure-track Instructor in Physics & Astronomy and Natural Sciences, 2007.
Member, Dept. of Physics and Astronomy Teaching Lab Technician Hiring Committee, 2006-07.
Member, Dept. of Physics and Astronomy Outreach Taskforce, 2005-06.
Member, Dept. of Physics and Astronomy Web-site Taskforce, 2005-06.
Member, Departmental Review Self-Assessment Committee, 2005 External Review of the Department, February,2005 - June,2005.

AMO Physics Representative, Department of Physics and Astronomy Space Committee, 2002-2006.
Member, Hiring Committee, *Experimental Quantum Information Science*, Faculty of Science, University of Calgary, 2002-03.
External Member, Hiring Committee, *functional Magnetic Resonance Imaging Scientist Position*, Department of Radiology, 2002
Member, Departmental Hiring Committee, *Theoretical Atomic, Molecular, and Optical Physics Faculty Position*, Department of Physics and Astronomy, 2001.
Member, Graduate Affairs Committee, Department of Physics and Astronomy, 2000 – 2003.
Faculty Representative, Graduate Liaison Committee, Department of Physics and Astronomy, 1999 – present.
Member, Head's Advisory Committee, Department of Physics and Astronomy, 1999 – 2000, 2000 – 2001.
Member, Undergraduate Affairs Committee, Department of Physics and Astronomy, 1999 – 2000, 2004.
Chair, Physics Junior Labs Review Sub-Committee, Department of Physics and Astronomy, 1999 – 2010.

Other Institutions:
Returning officer, Massey College Alumni Association Board of Directors Election, 1994.
Alumni Representative, Massey College Junior Fellow Selection Committee, 1994.
Director and Treasurer, Massey College Alumni Association, 1993, 1994.
Member, Massey College - School of Graduate Studies Symposium Committee, 1992-93.
Graduate Student Member, University of Toronto School of Graduate Studies Fellowships Task Force, 1992-93.
Member, Massey College Honorary Southam Fellow Selection Committee, 1992.
Graduate Student Member, University of Toronto School of Graduate Studies Electoral Review Sub-Committee, 1991.
Graduate Student Member, University of Toronto School of Graduate Studies Council, 1990-91, 1991-92.
Chairperson, Massey College Lionel Massey Fund Committee, 1991-92.
Member, Massey College House Committee, 1991-92.
Graduate Student Member, Physics Undergraduate Curriculum Review Committee, 1990-91.
Vice President, Physics Graduate Students Association, 1990-91.
Chairperson, Massey College Christmas Ball Committee, 1990.
Member, Massey College - Canadian Institute of Theoretical Astrophysics Lecture Committee, 1990.
Returning Officer, Massey College Junior Common Room Elections, 1988, 1989, 1990.
Laser Physics Representative, Physics Graduate Liaison Committee, 1989-90.
Treasurer, Massey College Christmas Ball Committee, 1989.
Co-Chair, Massey College Christmas Ball Committee, 1988.
President, University of British Columbia Physics Society, 1986-87.
Physics Representative, University of British Columbia Science Undergraduate Society Council, 1986-87.
Chairperson, Rudi Haering Prize Founding Committee, University of British Columbia, 1986-87.
Vice-President, University of British Columbia Physics Society, 1985-86.
Second-Year Representative, University of British Columbia Physics Society Council, 1984-85.

GRADUATE STUDENT SUPERVISORY AND EXAMINATION COMMITTEE

Ph.D. Supervisory Committee Membership
S. Guram (Supervisor A.R. Taylor), Department of Physics and Astronomy, U. Calgary, 2008 – present.
N. Koning (Supervisor S. Kwok), Department of Physics and Astronomy, U. Calgary, 2008 – present.
B. Niebergal (Supervisor R. Ouyed), Department of Physics and Astronomy, 2008 – 2011.
Mohammad-Ahbadi Mehdi Dehghany (Supervisor N. Moazzen-Ahmadi), Dept. of Physics and Astronomy, 2007-2011.

T. Meyer (Supervisor: I. Kaye), Radiation Oncology Physics, University of Calgary, 2007-2010.
R. Hydomako (Supervisor R.I. Thompson), Dept. of Physics & Astronomy, U. Calgary, 2007-present.
N. Babcock (Supervisor B. Sanders, co-supervisor D. Salahub), Dept. of Physics & Astronomy, U. Calgary, 2005 – present.
M. Cummings (Supervisor R.I. Thompson), Dept. of Physics & Astronomy, U. Calgary, 2006-present.
L. Poirier (Supervisor R.I. Thompson), Dept. of Physics & Astronomy, U. Calgary, 2006-present.
Randall Stafford (Supervisor: R. Frayne), Dept. of Physics & Astronomy, U. Calgary, 2006-present.
M. Afshari (Supervisor N. Moazzen-Ahmadi), Dept. of Physics & Astronomy, U. Calgary, 2005 – present.
L. Borvayeh (Supervisor N. Moazzen-Ahmadi), Dept. of Physics & Astronomy, U. Calgary, 2005 – present.
J. Choquette (Supervisor KP. Marzlin, co-supervisor R.I. Thompson), Dept. of Physics & Astronomy, U. Calgary, 2005 – present.
Emma Spanswick (Supervisor E. Donovan), Dept. of Physics & Astronomy, U. Calgary, 2004 – present.
XueSong Qi (Supervisor: B. Sanders), Dept. of Physics and Astronomy, University of Calgary, 2003 – 2007.
Pete Rizun (Supervisor: G. Sutherland), Dept. of Physics & Astronomy, U. Calgary, 2005- present.
Sergey Babichev (Supervisor: A. Lvovsky), Dept. of Physics & Astronomy, U. Calgary, 2004-2006.
Eden Figueroa Baragan (Supervisor: A. Lvovsky), Dept. of Physics and Astronomy, University of Calgary, 2004-2008.
Jason Cooper (Supervisor: N. Moazzen-Ahmadi), Dept. of Physics and Astronomy, U. Calgary, 2002-2006.
Ziad Abu Sara (Co-supervisor R.I. Thompson, Supervisor: N. Moazzen-Ahmadi), Dept. of Physics & Astronomy, U. Calgary, 2001 – 2006.
Kevin Douglas (Supervisor: R. Taylor), Dept. of Physics and Astronomy, Univ. of Calgary, 2000 – 2005.
Gail Conway (Supervisor: S. Kwok), Dept. of Physics and Astronomy, University of Calgary, 1999 - 2000.

M.Sc. Supervisory Committee Membership

A. Mayer (Superviser: M. Wieser), Isotope Science, University of Calgary, 2010-present.
A. Delfan Abazari (Supervisor: W. Tittel), Quantum Information Science, University of Calgary, 2008-09.
T. Meyer (Supervisor: I. Kaye), Radiation Oncology Physics, University of Calgary, 2005-2007.
S. Poole (Supervisor K.P. Marzlin) Dept. of Physics & Astronomy, U. Calgary, 2005-2008.
Diana Mak (Supervisor: A.L.Norman), Dept. of Physics & Astronomy, University of Calgary, 2005-present.
N. Babcock (Supervisor B. Sanders), Dept. of Physics & Astronomy, U. Calgary, 2005 – 2007.
Zahra Shaterzadeh Yazdi (Supervisor: B. Sanders), Dept. of Physics & Astronomy, U. Calgary, 2005-2007.
A. Mehta (Supervisor: W. Herzog), Kinesiology, University of Calgary, 2005 – 2009.
Randall Stafford (Supervisor: R. Frayne), Dept. of Physics & Astronomy, U. Calgary, 2004-2006.
Christy Bredeson (Supervisor: A.R. Taylor), Dept. of Physics & Astronomy, U. Calgary, 2004-06
Louis Poirier (Supervisor R.I. Thompson), Dept. of Physics & Astronomy, U. Calgary, 2003 - 2006.
Gina Badragan (Supervisor: P. Dunscombe), Dept. of Physics & Astronomy, U. Calgary, 2003 - 2005.
Thomas Harmon (Supervisor R.I. Thompson, Co-supervisor: N. Moazzen-Ahmadi), Department of Physics and Astronomy, University of Calgary, 2001-2003.
Jerémié Choquette (Supervisor R.I. Thompson), Dept. of Physics & Astronomy, U. Calgary, 2002-2005.
Aaron Szott (Supervisor: N. Moazzen-Ahmadi, Co-Supervisor: R.I. Thompson), Department of Physics and Astronomy, Univ. of Calgary, 2000 - 2003.
Wayne Knorr (Supervisor: S.R. Sreenivasan), Dept. of Physics & Astronomy, U. of Calgary, 2000 – 2002.
Amy Fisher (Supervisor: R.I. Thompson), Dept. of Physics and Astronomy, Univ. of Calgary, 1999 - 2001.

Ph.D. Oral Defense Committees:

Brian Niebergal (Supervisor: R. Ouyed), Department of Physics and Astronomy, U. Calgary, May 9, 2011.
Nathan Wiebe (Supervisor: B Sanders), Neutral Chair, Dept. of Physics & Astronomy, U.Calgary, Feb.2, 2011.
Randall Stafford (Supervisor: R. Frayne), Department of Physics & Astronomy, U. Calgary, Nov.18, 2010.
M.D.M. Abady (Supervior: N. Moazzen-Ahmadi, Dept. of Physics & Astronomy, U.Calgary, Aug. 20, 2010.
Tyler Meyer (Supervisor: P. Dunscombe), Department of Physics & Astronomy, U. Calgary, Aug.18, 2010.

Peter Rizun (Supervisor: G. Sutherland), Department of Physics and Astronomy, U. Calgary, June 16, 2010.
Jacob Foster (Supervisor: M. Paczuski) Neutral Chair, Dept. of Physics & Astronomy, U.Calgary, Apr.7, 2010.
Thomas Wood (Supervisors: B. Keay/W. Piers), Internal-External Examiner, Dept. of Chemistry, University of Calgary, November 19, 2009.
L. Borveyah (Supervisor N. Moazzen-Ahmadi), Dept. of Physics & Astronomy, U. Calgary, Aug.26, 2009.
Zengbin Wang (Supervisor B. Sanders), Dept. of Physics & Astronomy, University of Calgary, May 6, 2009
Scott Beattie (Supervisor A. Kumarakrishnan), External Examiner, Dept. of Physics, York University, April 28, 2009.
Emma Spanswick (Supervisor E. Donovan), Dept. of Physics & Astronomy, U. Calgary, January 7, 2009
Mark Baker (Supervisor: R.Sang), External Reader, Dept.of Physics, Griffiths University, Australia, Nov.08
Eden Figueroa-Barragon (Supervisor A. Lvovsky), Dept. of Physics & Astronomy, U. Calgary, May 16, '08.
Wendy Benoit (Supervisor B. Keay), Internal-external examiner, Dept.of Chemistry, U.Calgary, Aug.10,'07.
Jason Cooper (Supervisor: N. Moazzen-Ahmadi), Dept.of Physics & Astronomy, U. Calgary, Sept.12, 2006.
Ziad Abu Sara (Co-supervisor, Supervisor: N. Moazzen-Ahmadi), Department of Physics and Astronomy, University of Calgary, September 22, 2006.
Sergey Babichev (Supervisor: A. Lvovsky), Dept. of Physics and Astronomy, U. Calgary, Sept. 17, 2006.
Kevin Douglas (Supervisor: R. Taylor), Dept. of Physics and Astronomy, Univ. of Calgary, 2005.
Preston Chase (Supervisor: W. Piers), Internal-External Examiner, Department of Chemistry, University of Calgary, April 25, 2003.
Qiang Hu (Supervisor: A. Scott Hinman), Internal-External Examiner, Department of Chemistry, University of Calgary, Aug. 27, 1999.

M.Sc. Oral Defense Committees:

S. Guram (Supervisor A.R. Taylor), Department of Physics and Astronomy, U. Calgary, Dec. 15, 2009..
Korwin Moores (Supervisor E. Donovan), Dept. of Physics and Astronomy, U. Calgary, Aug. 20, 2009.
A. Delfan Abazari (Supervisor: W. Tittel), Quantum Information Science, U. Calgary, Aug. 7, 2009.
Ashi Mehta (Supervisor W. Herzog), Faculty of kinesiology, University of Calgary, June 16, 2008.
Simon Poole (Supervisor K.-P. Marzlin), Department of Physics and Astronomy, U.Calgary, April 15, 2008.
Richard Hydomako (Supervisor R.I. Thompson, Co-supervisor: M. Fujiwara), Department of Physics and Astronomy, University of Calgary, August 31, 2007.
Xinmao Li (Supervisor Y. Shi), Internal-External Examiner, Dept. of Chemistry, U. Calgary, May 22, 2007.
Randall Stafford (Supervisor: R. Frayne), Dept. of Physics & Astronomy, U. Calgary, August 28, 2006.
Christy Bredeson (Supervisor: A.R. Taylor), Dept. of Physics & Astronomy, U. Calgary, July 12, 2006
Gina Badragan (Supervisor: P. Dunscombe), Radiation Oncology Physics, University of Calgary, 2005.
Thomas Harmon (Supervisor R.I. Thompson, Co-supervisor: N. Moazzen-Ahmadi), Department of Physics and Astronomy, University of Calgary, 2003.
Aaron Szott (Supervisor: N. Moazzen-Ahmadi, Co-Supervisor: R.I. Thompson), Department of Physics and Astronomy, University of Calgary, January 9, 2003.
Wayne Knorr (Supervisor: S.R. Sreenivasan), Dept. of Physics & Astronomy, U. of Calgary, Sept.27, 2002.
Amy A. Fisher (Supervisor: R.I. Thompson), Dept. of Physics & Astronomy, U. of Calgary, Nov.30, 2001.
Matthew Scott (Supervisor: R. Paul), Internal-External Examiner, Department of Chemistry, University of Calgary, August 25 2001.

Ph.D. Candidacy Exam Committees:

T. Friesen (Supervisor: R. Thompson), Dept. of Physics & Astronomy, University of Calgary, Feb. 14, 2011.
A. MacRae (Supervisor: A. Lvovsky): Dept. of Physics & Astronomy, University of Calgary, Nov. 25, 2010.
B. Niebergal (Supervisor R. Ouyed), Dept. of Physics and Astronomy, University of Calgary, June 30, 2009
J. Foster (Supervisor M. Paczuski), Neutral Chair, Dept. of Physics and Astronomy, U. Calgary, June 16/09.

Richard Hydomako, (Supervisor: R. Thompson, co-supervisor M. Fujiwara), Dept. of Physics & Astronomy, University of Calgary, May 29, 2009.
E. Saglamyurek (Supervisor W. Tittel), Department of Physics and Astronomy, May 28, 2009.
N. Babcock (Supervisor B. Sanders, co-supervisor D. Salahub), Dept. of Physics & Astronomy, U. Calgary, Dec. 8, 2008.
T. Meyer (Supervisor: I. Kaye), Radiation Oncology Physics, University of Calgary, February 27, 2009.
S. Jabbari (Supervisor P. Dunscombe), Neutral Chair, Dept. of Physics & Astronomy, U. Calgary, Dec.9/08.
Louis Poirier, (Supervisor: R. Thompson, co-supervisor D. Shefanyshyn), Dept. of Physics & Astronomy, University of Calgary, May 23, 2008.
Mehdi (Nader) Deghany Mohammad Abady, (Supervisor: N. Moazzen-Ahmadi), Dept. of Physics & Astronomy, University of Calgary, May 7, 2008.
Michael Cummings, (Supervisor R. Thompson), Dept. of Physics & Astronomy, U. Calgary, May 6, 2008.
Randall Stafford, (Supervisor R. Frayne), Dept. of Physics and Astronomy, U. Calgary, Feb. 27, 2008.
Nathan Wiebe (Supervisor B. Sanders), Dept. of Physics and Astronomy, U. Calgary, Jan. 9, 2008.
M. Afshari (Supervisor N. Moazzen-Ahmadi), Dept. of Physics & Astronomy, U. Calgary, Dec. 17, 2007.
J. Choquette (Supervisor KP. Marzlin), Dept. of Physics & Astronomy, U. Calgary, Dec. 14, 2007.
Joseph Postma (Supervisor G. Milone), Dept. of Physics and Astronomy, U. Calgary, Nov. 7, 2007.
Leila Borvayeh, (Supervisor: N. Moazzen-Ahmadi), Dept. of Physics & Astronomy, University of Calgary, August 30, 2007.
Emma Spanswick (Supervisor E. Donovan), Dept. of Physics & Astronomy, U. Calgary, April 30, 2007.
Eden Figueroa Barragan (Supervisor A. Lvovsky), Dept.of Physics & Astronomy, U.Calgary, Nov.21, 2006.
Jason Jechow (Supervisor T.Ziegler), Internal-External Examiner, Dept.of Chemistry, U.Calgary, Oct.31/06
Sergey Babichev (Supervisor A. Lvovsky), Dept. of Physics & Astronomy, U. Calgary, May 11, 2006.
Thomas Wood (Supervisors: Keay/Piers), Internal-External Examiner, Dept. of Chemistry, University of Calgary, March 6, 2006.
Jason Cooper (Supervisor: N. Moazzen-Ahmadi), Dept.of Physics & Astronomy, U.Calgary, March 2, 2004.
Ziad Abu Sara (Co-supervisor, Supervisor: N. Moazzen-Ahmadi), Department of Physics and Astronomy, University of Calgary, April 13, 2004.
Kevin Douglas, (Supervisor: A.R. Taylor), Dept. of Physics & Astronomy, U. of Calgary, Oct.24, 2002.
Johnathan Burchill (Supervisor: D. Knudsen (S. Murphree)), Department of Physics and Astronomy, University of Calgary, June 26, 2000.
Wanwen Guo (Supervisor: D. Hobill), Dept. of Physics and Astronomy, Univ. of Calgary, June 21, 2000.
Preston Chase (Supervisor: W. Piers), Department of Chemistry, University of Calgary, Dec. 9, 1999.

Department of Physics and Astronomy Ph.D. Qualifying Exam
Set and Marked Quantum Mechanics Questions – 2000 through 2009, inclusive.

MEDIA INTERACTIONS AND PUBLICATIONS

Media Coverage related to publication of "A*ntihydrogen trapped for 1000 s*" Nature - Physics Article. On Camera interviews with CTV/CTV Newsnet, and Sun News Network as well as telephone interviews with the Calgary Sun and Calgary Herald. Resulted in articles including Canoe and Sun Newspaper chain. (June 2011)

Media Coverage related to publication of "*Trapped Antihydrogen*" Nature Article. Phone and in person interviews with University of Calgary Press release, CBC, The Calgary Herald, CBC Radio, CHQR, Richmond Review and Global TV. Resulted in major articles in Vancouver Sun, Calgary Herald, Calgary Sun, Telegraph (UK), Daily Mail (UK), Global News, The Independent (UK), Financial Post, National Post, Edmonton Journal, Saskatoon Star-Phoenix, Richmond Review… (Nov. 2010)

Article in Research in Action Online, "*One step closer to understanding antimatter*", Written by Leanne Yohemas, published online August 2010.

Article in U Magazine (Official University of Calgary Alumni Magazine). "*Getting to the bottom of the (anti)matter*", written by L. Yohemas and published in print and on-line in Spring 2009.

Article in OnCampus (Official University of Calgary Newsmagazine). "*Labatorials offer a new way to learn physics*", written by L. Yohemas and published in print and on-line in September 2008.

Interview, University of Calgary, Calgary, AB, Canada, 2007 June, Approximately 30 minutes, In June 2007, I was interviewed in person by staff of the Gauntlet (University fo Calgary Student Newspaper) and CKUA (University of Calgary Student Radio Station) about the 2007 DAMOP/DAMPhi conference. The interview provided the content for both a written article in the newspaper and a news item on the radio station.

Interview, CBC Radio One Calgary, Calgary, Alberta, Canada, 2006 July, 20 Minutes, I was interviewed live on CBC's Wildrose Country with regard to the ALPHA Project, a multinational effort to produce, store, and study Anti-Hydrogen, the simplest atomic form of anti-matter. The interview was partially motivated by interest generated in the topic by Dan Brown's prequel to "The Da Vinci Code", a book entitled "Angels and Demons".

Interviewed by Dave Arnold, CHQR AM770 News Radio, regarding bench-top fusion paper to be published by a group of American and Russian scientists in March 8 2002 issue of Science, March 4, 2002.

Interviewed by R. Summerfield, Calgary Herald, regarding bench-top fusion paper to be published by a group of American and Russian scientists in March 8 2002 issue of Science, March 6, 2002.

Robert I. Thompson, "*Festschrift Honours Boris Stoicheff*", MasseyNews: The Annual Newsletter of Massey College 2000-2001, p.1 (2002).

Laboratory Photographs for Calgary Herald Article "*Scientists Cash in on Research Funds*", Calgary Herald, October 26, 2001, p.B1.

Interviewed for CBC Regina's morning radio show, "A Good Question" segment
regarding optical phenomenon seen at sunset, Summer 2000.

Interviewed for Evening Television News, The A-Channel (Calgary)
regarding problems caused by the aging infrastructure at the University of Calgary, Spring 2000.

Interview with Access Television / Three-Point Productions (Arthur Raham), Summer 1999.
Discussion of the quality of incoming undergraduate students for a special on the state of high school education in the Province of Alberta.

University of Calgary Service Activities (non-committee):

Departmental Representative, University of Calgary Information Session for Incoming Undergraduates, April, 2008.

Departmental Representative, University of Calgary Open House, October, 2007.

Departmental Representative, CAP Head's and Chairs Meeting, *As our department head is an astronomer, I stand in for him at this annual meeting of Heads at the CAP Congress.* June 2006 in St. Catherines, ON, June 2007 in Saskatoon Saskatchewan, June 2008 in Quebec City, Quebec.

Techniques for effective university teaching: Providing students with a sense of ownership in their courses, R. Thompson, Lunch and Learn Session for Graduate Students, Teaching and Learning Centre, University of Calgary, 2007 February, I was one of a group of 3 presenters at a session with a group of Graduate Students who had completed the Teaching and Learning Centre's Instructional Skills

Workshop, but were looking to continue to learn about education skills. I gavean approximately 45 minute presentation and discussion.

Attendee and Department Representative, 3M Teaching Fellow Workshops, January 13, 2006, *"The 3M Teaching Fellowship: Who, How and Why" (2 hour workshop) "Preparing a Successful 3M Teaching Fellowship Nomination" (4 hour workshop)*

Albert Einstein, the Photoelectric Effect, and the Historical Development of Quantum Mechanics, Robert I. Thompson, Academic Sessions Talk, Tom Baker Cancer Clinic, University of Calgary, Foothills Hospital Campus, Calgary, AB, Canada, 2006 March

Albert Einstein, the Photoelectric Effect, and the Historical Development of Quantum Mechanics, Robert I. Thompson, World Year of Physics Celebration, University of Calgary, November 2005.

Working with B. Sanders, D. Hobill and D. Feder (Physics and Astronomy) and R. Cleve and J. Watrous (Computer Science), we developed a recruitment effort to establish an iCORE position in Quantum Information Science (QIS) in the Department of Physics and Astronomy. Working with the above mentioned faculty, we developed the formal iCORE proposal, as well as an affiliated CRC Tier II position proposal, as well as a proposal for a University Institute in QIS (2002 - present).

Presentation to group of visiting Junior High School students from "Hire-a-Student", July 22, 2002.

AMO Physics Representative, Meeting with External Referees (Prof. Longstaff and Thompson) for the Faculty of Science Research Plan and Benchmarking Document, May, 2002.

Organised and presented an evening talk/discussion session entitled "De-mystifying Graduate School" to 3rd Year Undergraduates, March 5, 2001, Jan. 30 & 31, 2002, Feb. 10, 2003, Jan. 23, 2004, Sept. 2005, Sept. 2006.

Organized and hosted a visit by a group of about a dozen senior undergraduate students from Montana State University to the Research Facilities of the Department of Physics and Astronomy at the University of Calgary, April 2007.

Organised and hosted visit by a group of 7 prospective graduate students from the University of Lethbridge, January 12, 2002.

PHAS Departmental Representative, Graduate Studies Exposition, 2006 Canadian Undergraduate Physics Conference, Fredericton, NB, October 2006.

PHAS Departmental Representative, Graduate Studies Exposition, 2005 Canadian Undergraduate Physics Conference, London, ON, October 2005.

PHAS Departmental Representative, Graduate Studies Exposition, 2003 Canadian Undergraduate Physics Conference, Victoria, BC, November 2003.

PHAS Departmental Co-Representative, Graduate Studies Exposition, 2001 Canadian Undergraduate Physics Conference, Winnipeg, Manitoba, November 9, 2001.

Organized and hosted, Physics and Astronomy Graduate Student Barbecue, September 1999, 2000, 2001, 2002, 2003, 2004, 2005.

PHAS Departmental Representative, Graduate Studies Exposition, 2001 Atlantic Undergraduate Physics and Astronomy Conference, Acadia University, Wolfville, Nova Scotia, February, 2001.

Designer, PHAS Departmental Graduate Studies Recruiting Poster, January 2001.

Co-Applicant, "*Centre for Applied and Integrated Science Building* (*Imperial Oil Research Centre)*", IORC/ISRIP Application (Principle Applicant: Dean P.M. Boorman), August 2000.

Organized and hosted, Reception, 2000 CAP High School Prize Exam Winners, June 29, 2000.

Designed and Initiated the Graduate Liaison Committee in the Department of Physics and Astronomy, 1999.

VISITING SPEAKER SEMINARS ARRANGED AT THE UNIVERSITY OF CALGARY

Faculty of Science / Departmental of Physics and Astronomy Public Lecture, Prof. Carl Wieman, University of British Columbia and University of Colorado, This lecture on teaching physics with modern techniques and tools was presented to a standing room only audience of well over 400 people, Feb. 5, 2007

Department of Physics and Astronomy Colloquium, Dr. Noah Finklestien, University of Colorado, "Using Physics Research to Improve Physics Education, September, 2005.

Department of Physics and Astronomy, Special Departmental Seminar and Discussion Session: Dr. Pedro Goldman, Professor, Department of Physics and Astronomy, University of Western Ontario, and Chair, Division of Physics Education, Canadian Association of Physicists, "*CAP Initiatives to Address the Low Undergraduate Enrollment in Physics Departments in Canada"*, February 6, 2002.

Faculty of Science Distinguished Lecturer Series: Prof. Robert F. Curl, Harry C. and Olga K. Wiess Professor of Natural Sciences, Department of Chemistry, Rice University "*The Fullerenes – Fifteen Years On*", March 8, 2001.

Department of Physics and Astronomy, Special Departmental Seminar: Dr. W. van Wijngaarten, Associate Professor, Department of Physics and Astronomy, York University, and co-Leader, Canadian Institute for Photonics Innovations, "*Research and Career Opportunities in Photonics"*, November 17, 1999.

Faculty of Science Distinguished Lecturer Series: Prof. B.P. Stoicheff, University Professor Emeritus, University of Toronto, "*Gerhard Herzberg: An Illustrious Life in Science*", April 9, 1999.

PROFESSIONAL AFFILIATIONS:

Member, Canadian Association of Physicists
Member, Division of Atomic and Molecular Physics
Member, Division of Physics Education
Member, American Physical Society (currently lapsed, restart Aug.1/11)
Member, Division of Atomic, Molecular, and Optical Physics
Member, Forum on Education
Member, Northwest Section

References

Available upon request.

Last Updated: Fall 2011