

# Ottawa Carleton Institute for Physics

## L'Institut de physique d'Ottawa Carleton

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## 2007 Annual Report

The Ottawa Carleton Institute for Physics (OCIP) was very active in 2007. It consisted of 79 faculty including 34 regular faculty and 45 adjunct, visiting, emeritus and cross appointed faculty, 53 Research Associates, and 104 Graduate Students. During 2007, 13 MSc and 8 PhD students graduated. Members of the Institute published 158 different papers in peer reviewed journals. The total research funding was \$8.95 M.

In July 2007 **Stephen Godfrey** became Director of OCIP and **Ivan L'Heureux** Associate Director. **Béla Joòs** became chair of the Department of Physics also in July 2007, replacing **Richard Hodgson**, who is enjoying a well-deserved retirement.

The Department of Physics at the University of Ottawa also recruited a new assistant professor: **Lora Ramunno**. She was appointed Canada Research Chair in Computational Nanophotonics. She is interested in studying intense laser interaction with nanoparticles and non linear optics. The University of Ottawa also welcomed three new adjunct professor members: **Ping Lu** (Communication Research Centre) works in electrophotonics (optical fibers, components and networks); **Christophe Py** (NRC) is interested in organic semiconductor and devices and cell chips development, whereas **Albert Stolow** (Steacie Institute) specializes in molecular photonics (ultrafast molecular dynamics, quantum control, and nonlinear optics). On the other hand, **Ralf Metzler** left his faculty position at the University of Ottawa for the Technische Universität München. In 2007, the Carleton University Physics Department welcomed one new faculty, the Adjunct Professor **Richard Wassenaar**. He was also cross-appointed in Nuclear Cardiology in the Department of Medicine, University of Ottawa.

Our members continued to offer their service to the physics community and to get involved in university affairs. **Xiaoyi Bao** was topical editor of *Applied Optics*. She was also a committee member of the Optical Fiber Sensors for Civil engineering Applications (subcommittee of the International Union of Laboratories and Experts in Construction Materials, Systems and Structures), a Council member for the International Society for Structural Health Monitoring of Intelligent Systems and Structures, a Steering committee member of the Structural Health Monitoring Resource center and a member of the Research Management Committee of Intelligent Sensing for Innovative Structures Canada. **Paul Corkum** was member of the editorial board of *Journal of Physics B* and of the *International Journal of Nonlinear Optics*. He was also member of the international advisory board of the Max Planck Institute for Quantenoptik in Garching, Germany, member of Royal Society of London's New Fellows Selection Committee (Physics), Chair of the 2007 international advisory board for the Photon Science Institute (The University of Manchester, UK), Chair of the internal advisory board, NSF Frontier Centre "FOCUS" 2007, member of the NCE - Canadian Institute for Photonics Innovation and team leader for ultrafast dynamic imaging thrust. He was also executive committee member of the APS Division of Laser Science, 2003-2007. **Steve Godfrey** continued as a member of the Polanyi Prize Selection Committee. **James Harden** was still Associate

Editor for the journal *Soft Materials*, of which he is a co-founder. He was also member of the NSERC/CIHR Collaborative Health Research Projects panel. **P. Hawrylak** was co-editor of a special issue of *Physics in Canada* on Quantum Information. **Béla Joós** continued his involvement as the chief Editor of *Physics in Canada*. **Ivan L'Heureux** was still Associate Editor of the *Canadian Journal of Physics*. **André Longtin** was appointed to the editorial board of *Biological Cybernetics* and *Cognitive Neurodynamics*. **Heather Logan** acted as a judge at the Ottawa Regional Science Fair. **Malcolm McEwen** became the Canadian representative on the Consultative Committee on Ionizing Radiation of the Bureau International des Poids et Mesures. **Dave Rogers** continued in his role as one of two Deputy Editors for the journal *Medical Physics* and also serves on the International Advisory Board of the IOP's journal *Physics in Medicine and Biology*. **Gary Slater** was still Dean of the Faculty of Graduate and Post-Doctoral Studies at the University of Ottawa. **Albert Stolow** was a member of the editorial board of *Journal of Biophotonics*. **Manuella Vincter** joined the editorial board of the particle physics journal *PMC Physics A*. **John Tse** was a panelist on the static sub-panel on Thermomechanical Extremes (Workshop on Basic Research Needs for Materials under extreme Environments – DOE's Office of Basic Energy Sciences – USA). He was also a panelist for the European Young Investigator Award, Natural Science 2 (European Science Foundation). Finally, **Chris Willott** was appointed as chair of Canadian Gemini Science Committee, appointed to the Gemini Science Committee and to the CASCA Optical and Infra-red Astronomy Committee. He also gave the English Christmas lecture at the University of Ottawa and appeared on CBC's *Quirks and Quarks* as well as on CBC Ottawa, to talk about his research.

Many of the institute members were also involved in the organization of conferences and workshops. **Xiaoyi Bao** was a member of the International Steering Committee of the third International Conference on Structural Health Monitoring and Intelligent Infrastructure, member of OFS-19 (International Optical Fiber Sensor) technical program committee, member of the organizing committee for the second International Symposium on Advances and Trends in Fiber Optics and Applications and a program committee member for the SPIE Smart Structures and Material Annual Conference. She was also a program committee member and Chair of Fiber Optics Sensor session at Photonics North Conference. **Paul Corkum** was co-chair of the 2007 Attosecond Science Conference. This was the founding conference for a new conference series. **Paul Finnie** was co-organizer of the Second Workshop on Nanotube Optics and Nanospectroscopy (Ottawa). Steve Godfrey was on the Advisory Committee of the Workshop on TeV-scale Physics and Neutrino Masses held at TRIUMF in Vancouver. **James Harden** was organizer of the Ontario Centres of Excellence symposium on Biomaterials for Nanomedicine. **Pawel Hawrylak** was co-chair of the International Workshop on Optical Properties of Low Dimensional Systems: Controlling Spins and Photons at the Nanoscale (Ottawa). He was also member of the International Advisory Committee for the International Conference on Electronic Properties of Two-Dimensional Electronic Systems (Genoa) and member of the International Advisory Committee for the International School on Physics of Semiconductor Compounds (Jaszowiec, Poland). **Heather Logan** was the co-organizer of the Higgs Phenomenology parallel session at the SUSY 2007 workshop in Karlsruhe Germany and a parallel session co-organizer at the Linear Collider Workshop 2007, workshop at DESY in Hamburg Germany. She was also a member of the program committee of ALCPG'07 (Joint Meeting of the American Linear Collider Physics Group and ILC Global Design Effort at Fermilab). **André Longtin** co-organized the Mathematical Neuroscience workshop held at the Centre de Recherche Mathématique (Université de Montréal). Longtin also organized the first Canadian summer school in Computational Neuroscience under the auspices of the uOttawa Center for Neural Dynamics, with financial support from MITACS and from the University of Ottawa. It attracted 40 graduate students from physics, mathematics, computer science, engineering and neuroscience. Near half the students were international, the other half from Canadian universities. The success of the event led to funding for a second school to be held in June 2008. **Stephen**

**Mihailov** was the session chair for the Fiber Optic Sensors and Applications V (Boston). He was also the subcommittee chair of the session on Bragg Gratings, Poling and Photosensitivity, Nano-Photonics Conference (Québec City). **Albert Stolow** was a member of the program committee of the 16<sup>th</sup> International Conference on Ultrafast Phenomena. **John Tse** was member of the international organizing committee of the 6<sup>th</sup> International Conference on Inelastic X-ray Scattering (Japan) and member of the organizing committee for the second workshop on "Ab Initio Phonon Calculations" (Poland). **David Villeneuve** was on the program committee for the Conference on Lasers and Electro-Optics/Quantum Electronics and Laser Science conference (CLEO/QELS).

Many Institute members received distinguished awards and honorary appointments in 2007. **Paul Corkum** received the NSERC Polanyi prize, became an officer of the Order-of-Canada and was appointed Fellow of the American Physical Society. **Joanne Cygler** became a fellow of the American Association of Physics in Medicine. **Lora Ramunno** was awarded an Ontario Early Researcher Award. Dan La Russa and **D. W. O. Rogers** won the 2007 Farrington-Daniels Award of the 5000 member American Association of Physicists in Medicine (AAPM) for publishing the "best article on radiation dosimetry" in the journal Medical Physics during 2006 (An EGSnrc investigation of the Ptp correction factor for ion chambers in kilovoltage x-rays). Medical Physics is the highest impact journal in the field of medical physics. **John Tse** was appointed the first Baoyugan Chair Professor at Zhejiang University (China) as well as an Honorary Professor at Sate Laboratory of Superhard Materials (Jilin University, China). He was also a visiting professor at Reims University (France).

A major report from AAPM's Task Group 105 was published in 2007 on the subject of "Issues associated with clinical implementation of Monte Carlo-based photon and electron external beam treatment planning". Of the 14 authors, 7 either are(3) or have been(3) members of the Ottawa Medical Physics Institute and/or received their PhDs from Carleton University(2).

## Members of the Ottawa-Carleton Institute of Physics

### REGULAR PROFESSORS

J. C. Armitage (C)  
D. Asner (C)  
X. Bao (O)  
A. Bellerive (C)  
R. Bhardwaj (O)  
T. Brabec (O)  
B. Campbell (C)  
L. Chen (O)  
A. Czajkowski (O)  
S. Desgreniers (O)  
M.S. Dixit (C)  
S. Godfrey (C)  
K. Graham (C)  
J. Harden (O)  
R.J. Hemingway (C)  
R. Hodgson (O)  
B.J. Jarosz (C)  
P.C. Johns (C)  
B. Joòs (O)

P. Kalyniak (C)  
H. Logan (C)  
A. Longtin (O)  
I. L'Heureux (O)  
F.G. Oakham (C)  
P. Piercy (O)  
L. Ramunno (O)  
D. Rancourt (O)  
D.W.O. Rogers (C)  
W.D. Sinclair (C)  
G. Slater (O)  
Z. Stadnik (O)  
M. Vincter (C)  
P.J.S. Watson (C)  
T. Xu (C)

**CROSS-APPOINTED PROFESSORS**

J. Giorgi (O)  
M. Kaern (O)  
R. Munger (O)  
H. Schriemer (O)

**ADJUNCT PROFESSORS**

I. Boulyzhenkov (O)  
I. Cameron (C)  
S. Charbonneau (O)  
K. Chen (O)  
P. Corkum (O)  
B. Clark (C)  
J. Cygler (C)  
R. deKemp (C)  
S. Fafard (O)  
P. Finnie (O)  
L.H. Gerig (C)  
C.K. Hargrove (C)  
P. Hawrylak (O)  
I. Kawrakow (C)  
G.K.Y.Lam (C)  
G. Lamarche (O)  
P. Lu (O)  
M. McEwen (C)  
S. Mihailov (O)  
C. Ng (C)  
C. Py (O)  
G. Rabinski (O)  
G.P. Raaphorst (C)  
S. Raymond (O)  
C.K. Ross (C)  
G. Santyr (C)  
K. Shortt (C)

T. Smy (O)  
 A. Stolow (O)  
 J. Tse (O)  
 D. Villeneuve (O)  
 A.J. Waker (C)  
 R. Wassenaar (C)  
 R. Williams (O)  
 D. Wilkins (C)  
 R. Wilkins (C)

### ***VISITING PROFESSOR***

Chris Willott (O)

### ***EMERITUS PROFESSORS***

R. Carnegie (C)  
 Emery Fortin (O)  
 Marcel LeBlanc (O)  
 M.K. Sundaresan (C)  
 Yatendra Varshni (O)

## **2007 OCIP Seminar Series**

### **OCIP Special Seminars**

<b>Name</b>	<b>Institution</b>	<b>Title</b>	<b>Date</b>	
Andrew Ridsdale	Ottawa Health Research Institute	The importance of treating living cells as states of matter and some suggestions on how to proceed	March 6	C
A. B. Balantekin	University of Wisconsin-Madison	Neutrinos in the Sun and Supernovae	March 9	C
Rob Knobel	Queen's University	Nanoscale mechanics: Approaching Quantum Limits	Oct. 19	C

**OCIP - Spring Graduate Student Seminar Day 1  
Carleton University - Thursday, May 17, 2007**

14:00	Gordana Tesic (Carleton U.) <i>Global solar analysis with a weakly mixed sterile neutrino</i>
14:30	Michel Gauthier (U. of Ottawa) <i>Simulation of polymer translocation through small channels</i>
13:00	Claudiu Cojocaru (Carleton University) <i>Single top physics at the LHC</i>
<b>15:30</b>	<b><i>Break with refreshments / Pause avec rafraîchissements</i></b>
16:00	Sami Kamran (U. of Ottawa) <i>The electronic origin of elastic properties of materials</i>
16:30	Malachi Schram (Carleton U.) <i>Fcal 2003 test beam results</i>

**OCIP - Spring Graduate Student Seminar Day 2  
University of Ottawa - Monday, May 28, 2007**

14:00	Martin Vachon (U. of Ottawa) <i>Energy shell structure of InAs/GaAs quantum dots as revealed by ultra-high magnetic fields: From ensemble to single dot.</i>
14:30	Ken Moats (Carleton U.) <i>Longitudinal WZ scattering in the littlest Higgs model.</i>
15:00	Cynthia Clark (U. of Ottawa) <i>Wavefront aberrations of the excised crystalline lens.</i>
<b>15:30</b>	<b><i>Pause avec rafraîchissements / Break with refreshments</i></b>
16:00	Amanda Cherpak (Carleton U.) <i>MOSFET detectors in quality assurance of tomography treatments</i>
16:30	Roxana Flacau (U. of Ottawa) <i>Mapping electron density distributions: Rietveld/maximum entropy method analysis of X-ray diffraction data.</i>

**OCIP - Spring Graduate Student Seminar Day 3  
Carleton University - Monday, June 4, 2007**

14:00	Jean-François Joly (U. of Ottawa) <i>A phase-field model of vesicle flow under a pressure gradient in a constrained environment.</i>
14:30	Trevis Martin (Carleton U.) <i>Distinguishing between models of extra neutral gauge bosons at the LHC.</i>
15:00	Severin Stojanovic (U. of Ottawa) <i>A simple numerical reaction-transport model of the water column dynamics of limnological environments.</i>
<b>15:30</b>	<b><i>Pause avec rafraîchissements / Break with refreshments</i></b>
16:00	Andrew McDonald (Carleton U.) <i>Measured electron scattering distributions in the MeV range and comparison to calculations.</i>
16:30	Francis Torres (U. of Ottawa) <i>Numerically exact diffusion coefficients of a point-like molecule in periodic networks of cavities.</i>

**OCIP – Fall Graduate Student Seminars  
Carleton University- Thursday, December 6, 2007**

9:00	Lilie Wang (Carleton U.) <i>Monte Carlo calculation of the replacement correction factor in ion chamber radiation dosimetry</i>
9:30	Philippe Marchand (U.of Ottawa) <i>La formation des nanoparticules de ferrihydrite.</i>
10 :00	Tara Murphy (Carleton U.) <i>Evaluation of treatment planning systems with GAFCHROMIC film for head and neck carcinoma.</i>
10 :30	<b><i>Break with refreshments /Pause avec rafraîchissements</i></b>
11:00	Cole Van Vlack (Ottawa U.) <i>Time dependent complex scaling: Quantum dynamics in strongly perturbed systems</i>
11:30	Jared Strydhorst (Carleton U.) <i>Treating breast cancer with tomotherapy: Physics considerations..</i>
12:00	Jesse Leeson (U. of Ottawa) <i>Monitoring polarization modulations on OPGW networks</i>

**OCIP – Christmas Symposium**  
**University of Ottawa - Wednesday, December 12, 2007**

9:30	Gerald Oakham (Carleton U.) <i>Working at the energy frontier of particle physics: the LHC and ATLAS.</i>
10:00	Paul Corkum (U. of Ottawa/Carleton) <i>Atto-science.</i>
10:30	Glenn Wells (Carleton U.) <i>X-ray computed tomography (CT) in nuclear medicine: Clarifying “uNclear” imaging.</i>
11:00	<b><i>Break with refreshments / Pause avec rafraîchissements</i></b>
11:30	Albert Stolow (U. of Ottawa) <i>Ultrafast molecular sciences: From quantum dynamics and control to biophotonics.</i>
12:00	Hongsheng Hou (Carleton U.) <i>Higgs physics in standard model and beyond.</i>
12:30	Réjean Munger (U. of Ottawa) <i>Light: A practical tool for non-invasive health assessment..</i>

### 2007 Departmental Seminars

Name	Institution	Title	Date	
Carl Svensson	University of Guelph	Gamma-Ray Spectroscopy at TRIUMF-ISAC	Jan. 16	C
Jean-Francois Arguin	Lawrence Berkeley National Laboratory	The Top Mass at CDF and the Final Preparation for ATLAS	Jan. 22	C
Yann Coadou	Simon Fraser University	Evidence for single top production at the D0 experiment	Jan. 24	C
Brennan Hughey	University of Wisconsin-Madison	An Untriggered Search for High Energy Neutrinos from Gamma Ray Bursts with AMANDA-II	Jan. 30	C
Hirohisa Tanaka	Princeton University	The Latest from MiniBooNE	Feb. 6	C
David Sinclair	Carleton University	Underground Science at SNOLAB and Progress towards a Search for Neutrino-less Double Beta decay in $^{136}\text{Xe}$	Feb. 13	C

Richard Wassenaar	Nuclear Medicine, Ottawa Hospital	Quantifying Cardiac Contractions using Single Photon Emission Tomography	Feb. 27	C
Veronique Boisvert	University of Rochester	The top quark: a "charged" topic	Feb. 28	C
Neil Barnaby	McGill University	Signatures of preheating in the microwave sky	Mar.13	C
L. John Schreiner	Cancer Centre Southeastern Ontario Kingston, Ontario	Is there a role for simple devices in modern radiation therapy? Cobalt 60 and Optical CT	Mar. 20	C
Rowan Thomson	Perimeter Institute and University of Waterloo	String theory and QCD	Mar. 27	C
Paolo Benincasa	University of Western Ontario	Recursive Methods for Scattering Amplitudes	Apr. 4	C
Glenn Wells	Ottawa Heart Institute	Integrating CT into Nuclear Medicine Imaging	Apr. 10	C
Peter Skands	Fermilab	Towards improved event generators	May 11	C
Rolf Clackdoyle	Laboratoire Hubert Curien Universite Jean Monnet Saint Etienne France	Classical Computed Tomography. What's New?	June 25	C
Paul M. Meaney	Thayer School of Engineering Dartmouth College	Microwave Imaging: Breast Cancer Detection and Thermal Imaging in Conjunction with Focused Ultrasound Therapy	June 26	C
M. K. Sundaresan	Carleton University	Generation of High Frequency Acoustic Waves by Magnetic Nanoparticles in an AC Magnetic Field – Application to Hyperthermia	Sept. 28	C
Bob Holdom	University of Toronto	A Fourth Family at the LHC	Oct . 12	C
H.C. Lee	National Central University Chungli Taiwan ROC and National Center for Theoretical Sciences Hsinchu Taiwan ROC	Physics and Evolution of Genomic Sequences	Oct .16	C
Fabrice Retiere	TRIUMF	Liquid Xenon detector for medical and physics applications	Oct. 23	C
Chris Potter	McGill University	Charged Higgs searches at DZero	Nov. 2	C
John Ellis	CERN	Searching for Supersymmetry at the	Nov. 5	C

		LHC		
David LeBlanc	Carleton University	Molten Salt Reactors: The 2 Fluid Approach to a Practical Closed Cycle Thorium Reactor	Nov. 9	C
Marius Facina	National Superconducting Cyclotron Laboratory Michigan State University	High-Precision Mass Measurements with LEBIT at NSCL - From Fast to Thermal Radioactive Ion Beams	Nov. 15	C
Mike Roney	University of Victoria	Charged Leptons as a Probe of the Standard Model	Nov. 15	C
Pierre Savard	University of Toronto	News from the Collider Detector at Fermilab	Nov. 16	C
Art Olin	TRIUMF	New results from TWIST: Probing the Weak Interaction with Muon Decay	Nov. 20	C
David Maybury	Carleton University	Neutrino Physics, Lepton Flavour Violation, and Collider Measurement of Supersymmetric Particles	Nov. 23	C
George X Ding	Vanderbilt University School of Medicine	Accurate patient dosimetry of kilovoltage cone-beam CT in radiation therapy	Nov. 29	C
Peter Onyisi	Cornell	The Charm Decay Scale at CLEO-c	Dec. 20	C
Alex Hutt	Univ. of Ottawa Dept. of Physics	Analysis and modeling of spatio-temporal activity in the brain	Jan. 11	O
Roberto Fernández Galán	Carnegie Mellon Univ. Mellon Institute	Phase-oscillator models in neuroscience : deterministic and stochastic studies on neuronal synchronization	Jan. 23	O
Andrzej Czajkowski	Univ. of Ottawa Dept. of Physics	10 years of Sokal Hoax	Jan. 25	O
René Doyon	Univ. de Montréal Département de physique	The Gemini Deep Planet Survey	Feb. 1	O
Jeremy Pencer	NRC – Canadian Neutron Beam Centre Chalk River Labs	Neutron Scattering to Characterize Membrane Domains	Feb. 8	O
David Villeneuve	National Research Council of Canada	Can a Molecular Orbital Wave Function be Imaged using a Femtosecond Laser?	Feb. 15	O
Louis Marchildon	Université du Québec Département de physique	Understanding long-distance quantum correlations	Mar. 1	O

Chris Willott	Univ. of Ottawa Dept. of Ottawa	Probing the Reionization of the Universe with Quasars	Mar. 8	O
Stephen Godfrey	Carleton University Dept. of Physics	The Terascale Frontier: The Hunt for New Physics at the LHC	Mar. 15	O
David Boal	Simon Fraser Univ. Dept. of Physics	Soft matter physics and the evolution of cell design	Mar. 22	O
Kirstin R. Purdy	Univ. of Illinois Dept. of Materials Science and Engineering	Like charge attraction of biological rod-like polyelectrolytes: from sputum to stereocilia	Mar. 29	O
4 <sup>th</sup> -year Honours Physics Students	Univ. of Ottawa Dept. of Physics	Poster session	Apr. 4	O
Maurice Chacron	McGill University Dept. of Physiology & Center for Nonlinear Dynamics	Noise Shaping in Neurons	Apr. 5	O
Andrew E. Pelling	Univ. College London Centre for Nanotechnology and Department of Medicine	Can you feel it? Emerging Biology and Physics from Living Cells and Developing Butterflies	May 31	O
Orest Symko	University of Ottawa Dept. of Physics	In honour of Dr. Lamarche's 50 <sup>th</sup> year in the department of physics	Jun. 1	O
Helmut Satzger	NRC - Steacie Institute for Molecular Sciences	Light-Triggered Biomolecular Mechanics	Jun. 13	O
Adela Ben-Yakar	University of Texas Dept. of Mechanical Engineering	Femtosecond Laser assisted Plasmonic Bio-Imaging and Nano-Manipulation: When Femtonics meets Plasmonics	Aug. 9	O
Xingyu Zhang	Shandong University, Jinan School of Information Science and Engineering	Solid State Raman Lasers	Sept. 06	O
Michael Rosenblum	University of Potsdam, Germany Nonlinear Dynamics Group	Self-organized quasiperiodicity in oscillator ensembles with global nonlinear coupling	Sept. 13	O
Ping Lu	CRC	The origin, property and system impact of birefringence in fiber Bragg gratings	Sept. 20	O
Physics Fest	Dept. of Physics	Condensed Matter and Nanophysics Biophysics Photonics	Sept. 27	O
Hendrick De Haan	University of Ottawa Dept. of Physics	Nonequilibrium molecular dynamics calculation of the conductance of the	Oct. 4	O

		KcsA potassium ion channel		
R.J. Dwayne Miller	University of Toronto Depts. of Chemistry and Physics	Femtosecond Electron Diffraction: Making the Molecular Movie	Oct. 11	O
Melissa Graham	University of Victoria Physics and Astronomy	The Canada-France-Hawaii Telescope's Supernova Legacy Survey	Oct. 18	O
Robin Williams	NRC – Univ. of Ottawa Dept. of Physics	InAs/InP Quantum Dot Nanostructures	Oct. 25	O
Pawel Hawrylak	NRC of Canada Institute for Microstructural Sciences	Quantum Dots-From Biology to Quantum Information	Nov. 1	O
Christophe Py	NRC of Canada Institute for Microstructural Sciences	Hybrid microfabrication: application of OLEDs and Neurochips	Nov. 15	O
Paul Brumer	University of Toronto Dept. of Chemistry	Quantum Interference in the Control of Molecular Processes	Nov. 22	O
Greg Hammett	Princeton University Plasma Physics Laboratory	Status of Research on Magnetic Fusion Energy and Plasma Turbulence	Nov. 29	O
James Polson	Univ. of Prince Edward Island Dept. of Chemistry	A Critical Evaluation of Theories of Polymer Collapse	Nov. 30	O
S. Ruffell	Australian National University Dept. of Electronic Materials Engineering, Research School of Physical Sciences & Engineering	Nanoindentation for patterning and processing of silicon-based materials	Dec. 6	O

### Refereed Journal Publications in 2007

F. Ravet, X. Bao, Y. Li, Q. Yu, A. Yale, V. Kalosha, and L. Chen, "Signal processing technique for the distributed Brillouin sensor at centimeter spatial resolution", IEEE J-LT. 25, 3610-3618 (2007).

F. Ravet, L. Zou, X. Bao, T. Ozbakkaloglu, M. Saatcioglu and J. Zhou, "Distributed Brillouin Sensor

for Structural Health Monitoring”, Canadian J. of Civil Engineering 34, 291-297 (2007).

J. Snoddy, Y. Li, F. Ravet and **X. Bao**, “Stabilization of EOM bias voltage drift using lock-in amplifier and PID controller in distributed Brillouin sensor system”, App. Opt. 46, 1482-1485 (2007).

S. Yang, J. Cameron and **X. Bao**, “Stabilized phase modulated rational harmonic mode-locking soliton fiber laser”, IEEE PTL 19, 393-395 (2007).

C. Zhang, W. Li, **X. Bao** and **L. Chen**, M. Du, “Tensile strain dependence of the Brillouin gain spectrum in a novel carbon coated fibre”, Opt Lett. 32, 2565-2567 (2007).

Z. Zhang, **X. Bao**, Q. Yu and **L. Chen**, “Time Evolution of PMDs due to the Tides and Sun Radiation on Submarine Fibers”, Optical Fiber Technology 13, 62-66, (2007).

S. Patchkovskii, Z. Zhao, **T. Brabec** and **D. M. Villeneuve**, “High harmonic generation and molecular orbital tomography in multielectron systems”, J. Chem. Phys. 126, 114306 (2007).

Z. Zhao, J. Juan, and **T. Brabec**, “Multi-electron signatures in the polarization of high harmonic radiation”, Phys. Rev. A 76, 031404(R) (2007).

**K. Chen** and L. Zhao, “Elastic properties, thermal expansion coefficients and electronic structures of  $Ti_{0.75}X_{0.25}C$  carbides”, J. Phys. Chem. Solids 68, 1805 (2007).

**K. Chen** and L. Cheng, “*Ab initio* study of elastic, thermal physical properties and electronic structures of Fe-Ga alloys”, Phys. Stat. Sol (b) 244, 3583(2007).

**K. Chen** and L. Cheng, “Alloying solid solution strengthening of Fe-Ga alloys: a first-principles study”, J. Phys. D: Appl. Phys. 40, 3268 (2007).

**K. Chen** and M. Bielawski, “Ab-initio study on fracture toughness of  $Ti_{0.75}X_{0.25}C$  ceramics”, J. Mater. Sci. 42, 358(2007).

**L. Chen**, Z. Zhang and **X. Bao**, “Combined PMD-PDL effects on BERs in fiber-optic systems: an analytical approach”, Optics Express 15, 2106-2119 (2007).

V. P. Kalosha, **L. Chen**, and **X. Bao**, “Slow light of sub-nanosecond pulses via stimulated Brillouin scattering in non-uniform fibers”, Phys Rev A: Rapid Communications, 75, 21802 (2007).

Z. Zhang, **L. Chen** and **X. Bao**, “Accurate BER evaluation for lumped DPSK and OOK systems with PMD and PDL”, Opt. Express 15, 9418-9433 (2007).

**B.G. Clark**, M. McKenzie, J. Robar, E. Vollans, C. Candish, B. Toyota et al., ”Does intensity modulation improve health tissue sparing in stereotactic radiosurgery of complex arteriovenous malformations?”, Med. Dosim. 32, 172-180 (2007).

A. Mestrovic, M.P. Milette, A. Nichol, **B.G. Clark** and K. Otto., “Direct aperture optimization for online adaptive radiation therapy”, *Med. Phys.* 34, 1631-1646 (2007).

C. Thomas, M.S. Di, R. Ma, E. Vollans, C. Chu, **B.G. Clark** et al., “Hearing preservation following fractionated stereotactic radiotherapy for vestibular schwannomas: prognostic implications of cochlear dose”, *J. Neurosurgery* 107, 917-26 (2007).

S. Chelkowski, A. D. Bandrauk, A. Staudte and **P. Corkum**, “Dynamic nuclear interference structures in the Coulomb explosion spectra of a hydrogen molecule in intense laser fields: Reexamination of molecular enhanced ionization”, *Phys. Rev. A* 76, 013405 (2007).

**P. Corkum** and F. Krausz, “Attosecond Science”, *Nature Physics* 3, 381 (2007).

J. Levesque, Y. Mairesse, N. Dudovich, H. Pepin, J.-C. Kieffer, **P. Corkum**, and **D. M. Villeneuve**, “Polarization state of high-order harmonic emission from aligned molecules”, *Phys. Rev. Lett.* 99, 243001 (2007).

J. Levesque, D. Zeidler, J. P. Marangos, **P. Corkum**, and **D. M. Villeneuve**, “High Harmonic Generation and the Role of Atomic Orbital Wave Functions”, *Phys. Rev. Lett.* 98, 183903 (2007).

D. Pavicic, K. F. Lee, D. M. Rayner, **P. Corkum**, and **D. M. Villeneuve**, “Direct measurement of the angular dependence of ionization for N<sub>2</sub>, O<sub>2</sub> and CO<sub>2</sub> in intense laser fields”, *Phys. Rev. Lett.* 98, 243001 (2007).

P.P. Rajeev, M. Gerstvolff, E. Simova, C. Hnatovsky, R.S. Taylor, **P. Corkum**, D.M. Rayner and **V.R. Bhardwaj**, “Transient nanoplasmonics inside dielectrics”, *J. Phys. B* 40, S273 (2007).

R. S. Taylor, C. Hnatovsky, E. Simova, P. P. Rajeev, D. M. Rayner, and **P. Corkum**, “Femtosecond laser erasing and rewriting of self-organized planar nanocracks in fused silica glass”, *Opt. Lett.* 32, 2888 (2007).

G. L. Yudin, S. Patchkovskii, **P. Corkum** and A. D. Bandrauk, “Attosecond photoelectron interference in the separable Coulomb–Volkov continuum”, *J. Phys. B* 40, F93 (2007).

I. Chetty, B. Curran, **J.E. Cygler** et al., “Report of the AAPM Task Group No. 105: Issues associated with clinical implementation of Monte Carlo-based photon and electron external beam treatment planning”, *Med. Phys.* 34, 4818-4853, (2007).

D. Chiriu, N. Faedda, A. G. Lehmann, P. C. Ricci, A. Anedda, **S. Desgreniers**, **E. Fortin**. “Structural characterization of Lu<sub>1.8</sub>Y<sub>0.2</sub>SiO<sub>5</sub> crystals”, *Phys. Rev. B* 76, 054112 (2007).

J. S. Smith, **S. Desgreniers**, **J. S. Tse**, and D. D. Klug. “High-pressure phase transition observed in barium hydride”, *J. Appl. Phys.* 102, 043520 (2007).

D. G. Austing, J. Lefebvre, J. Bond and **P. Finnie**, “Carbon contacted nanotube field effect transistors”, *Applied Physics Letters* 90, 103112 (2007).

J. Bond, J. Lefebvre, D. G. Austing, L. Tay and **P. Finnie**, “Chemical vapour deposition of single walled carbon nanotubes freely suspended over nanotube supports”, *Nanotechnology* 18, 135603 (2007).

K. Kaminska, J. Lefebvre, D. G. Austing and **P. Finnie**, “Real-time in situ Raman imaging of carbon nanotube growth” *Nanotechnology* 18, 165707 (2007).

J. Lefebvre and **P. Finnie**, “Polarized Photoluminescence Excitation Spectroscopy of Single-Walled Carbon Nanotubes”, *Phys. Rev. Lett.* 98, 167406 (2007).

Z. Gao, J. Szanto and **L.H. Gerig**, “Using multileaf collimator interleaf leakage to extract absolute spatial information from electronic portal imaging device images”, *J. Appl. Clin. Med. Phys.* 8, 1-9 (2007).

S. Fischer, X. Liu, H.-Q. Mao, **J. L. Harden**, “Controlling Cell Adhesion to Surfaces via Associating Bioactive Triblock Proteins”, *Biomaterials* 28, 3325-3337, (2007).

H. Guo, J.N. Wilking, D. Liang, G. Mason, **J. L. Harden** and R.L. Leheny, “Slow, Non-Diffusive Dynamics in Concentrated Nanoemulsions”, *Phys. Rev. E.* 75, 041401 (2007).

R. M. Abolfath, **P. Hawrylak** and Igor Zutic , ”Tayloring magnetism in quantum dots”, *Phys. Rev. Lett.* 98, 207203 (2007).

R. M. Abolfath, **P. Hawrylak** and Igor Zutic, ”Electronic states of magnetic quantum dots”, *New Journal of Physics* 9, 353 (2007) (invited paper).

F. Delgado, Y.-P. Shim, M. Korkusinski, and **P. Hawrylak**, “Theory of spin, electronic and transport properties of the lateral triple quantum dot molecule in a magnetic field”, *Phys. Rev. B* 76, 115332 (2007).

M. Korkusinski, I. Puerto-Gimenez, **P. Hawrylak**, L. Gaudreau, S. A. Studenikin and A. S. Sachrajda,” Topological Hund's rules and the electronic properties of a triple lateral quantum dot molecule”, *Phys. Rev. B* 75, 115301 (2007).

M.Korkusinski, **P. Hawrylak**, A. Babinski, M.Potemski, **S. Raymond** and Z. Wasilewski, ”Optical read out of charge and spin in a self-assembled quantum dot in a high magnetic field”, *Eur.Phys.Lett.* 79,47006 (2007).

I. Puerto-Gimenez, M. Korkusinski and **P. Hawrylak**, ”Linear combination of harmonic orbitals and configuration interaction method for the voltage control of exchange interaction in gated quantum dot networks”, *Phys. Rev. B* 76, 075336 (2007) .

Boucher, P.-A., **B. Joós**, Zuckermann, M.J., and Fournier L., “Pore formation in a lipid bilayer under a tension ramp: modeling the distribution of rupture tensions”, *Biophys. J.* 92 , 4344-4355 (2007).

Gauthier A., **B. Joós**, “Stretching Effects on the Permeability of Water Molecules across a Lipid Bilayer”, *J. Chem. Phys.* 127, 125124 (2007).

Zhou, Z., **B. Joós**, and Lai, P-Y, “Elasticity and stability of a helical filament with spontaneous curvatures and isotropic bending rigidity”, *Mod. Phys. Lett. B* 21, 1895-1913 (2007).

**I. L’Heureux**, “A new model of volatile bubble growth in a magmatic system – isobaric case”, *Journal of Geophysical Research* 112, B12208 (2007).

A. Droll and **H. E. Logan**, “Physics impact of ILC Higgs coupling measurements: the effect of theory uncertainties”, *Phys. Rev. D* 76, 015001 (2007).

D. Babineau, J.E. Lewis and **A. Longtin**, “Spatial acuity and prey detection in weakly electric fish”, *PLoS Comp. Biol.* 3, e38 (2007) (selected as "Editor's pick").

M.J. Chacron, B. Lindner and **A. Longtin**, “ Action potential threshold dynamics and information transmission”, *J. Comput. Neurosci.* 23, 301-311 (2007).

A. Hutt, **A. Longtin** and L. Schimansky-Geier, “Additive global noise delays Turing bifurcations”, *Phys. Rev. Lett.* 98, 230601 (2007).

**A. Longtin**, “Linking dynamics to function in weakly electric fish”, *SIAM News* (Society for Industrial and Applied Mathematics), Vol. 40, special issue on "Mathematics and the Brain". (March 2007).

**A. Longtin**, “Stochastic Dynamics Systems”, *Scholarpedia* (online encyclopedia) (2007).

**A. Longtin** and B. Doiron, “Neuronal Noise”, *Scholarpedia* (online encyclopedia) (2007).

J.W. Middleton, E. Harvey-Girard, L. Maler and **A. Longtin**, “Envelope gating, noise shaping and signal transmission in populations of noisy neurons”, *Phys. Rev. E* 75, 021918 (selected for: *Virtual Journal of Biological Physics Research*) (2007).

**P. Lu**, D. Grobnic, and **S. Mihailov**, “Characterization of the Birefringence in Fiber Bragg Gratings Fabricated with an Ultrafast-Infrared Laser”, *Journal of Lightwave Technology* 25, 779-786 (2007).

**P. Lu** and **S. Mihailov**, “Power Penalty of Cascaded Bragg Gratings in the Presence of PMD and PDL,” *Optics Communications* 280, 364-367 (2007).

D.J. La Russa, **M.R. McEwen** and **D.W.O. Rogers**, “An experimental and computational investigation of the standard temperature-pressure correction factor for ion chambers in kilovoltage x rays”, *Medical Physics* 34, 4690-4699 (2007).

D. Grobnic, **S. Mihailov**, R. B.Walker, C. W. Smelser, C. Lafond and A. Croteau, “Bragg Gratings Made with a Femtosecond Laser in Heavily Doped Er-Yb Phosphate Glass Fiber,” *IEEE Photonics Technology Letters* 19, 943-945 (2007).

D.Grobnic, **S. Mihailov** and C. W. Smelser, “Localized high birefringence in SMF-28 fiber induced by femtosecond IR laser exposure of the cladding,” *Journal of Lightwave Technology* 25, 1996-2001 (2007).

D. Grobnic, H. Ding, **S. Mihailov**, C.W. Smelser, J. Broeng, “High Birefringence Fibre Bragg Gratings Written in Tapered Photonic Crystal Fibre with Femtosecond IR Radiation,” *Electronics Letters* 43, 16-17 (2007).

**S.J. Mihailov**, D. Grobnic, C.W. Smelser, “Efficient Grating Writing Through the Fibre Coating with Femtosecond IR Radiation and a Phase Mask,” *Electronics Letters* 43, 442-443 (2007).

W. J. Reichman, J. W. Chan, C. W. Smelser, **S. Mihailov** and D. M. Krol, “Spectroscopic Characterization of Different Femtosecond Laser Modification Regimes in Fused Silica,” *Journal of the Optical Society of America B* 24, 1627-1632 (2007).

C. W. Smelser, **S. Mihailov** and D. Grobnic, “Characterization of Fourier components in Type I-IR ultrafast fiber Bragg gratings,” *Optics Letters* 32, 1453-1455 (2007).

D.R. Jordan and **R. Munger**, “Porous implant exposure: incidence, management, and morbidity”, *Ophthal Plast Reconstr Surg.* 23 , 505-506 (2007).

N.S. Lagali, D. Burns, D.L. Zimmerman and **R. Munger**, “Spectroscopic whole-blood indicators of end-stage renal disease and the hemodialysis treatment”, *Photochem Photobiol.*, 83, 1186-1192 (2007).

N. Lagali, M. Griffith, N. Shinozaki, P. Fagerholm and **R. Munger**, “Innervation of tissue engineered corneal implants in a porcine model: a 1-year in vivo confocal microscopy study”, *Invest. Ophthalmol. Vis. Sci.* 48, 3537- 3544 (2007).

**G. Oakham, J.C. Armitage** et al, “Electron signals in the forward calorimeter prototype for ATLAS”, 31 pp. Published in *JINST* 2:P11001, 2007.

**G. Oakham**, D.M. Gingrich et al, “Construction, assembly and testing of the ATLAS hadronic end-cap calorimeter”, *ATL-LARG-PUB-2007-009, ATL-COM-LARG-2007-006*, Apr 2007. 44pp. Published in *JINST* 2:P05005, 2007.

R.Voicu, K.Faid, A.Farah, F.Bensebaa, R.Barjovanu, **C.Py** and Y.Tao, “Nanotemplating for 2D Molecular Imprinting”, *Langmuir* 23, 5452 -5458 (2007).

T. Fennel, **L. Ramunno** and **T. Brabec**, “Highly charged ions from laser cluster interactions role of local-field enhanced impact ionization and electron-ion recombination”, *Phys. Rev. Lett.* 99, 233401 (2007).

C. Dion, P. Desjardins, M. Chicoine, F. Schiettekatte, P. J. Poole, and **S. Raymond**, “Drastic Ion-implantation-induced intermixing during annealing of self-assembled InAs/InP (100) Quantum Dots”, *Nanotechnology* 18, 015404 (2007).

H. Tang, J.A. Bardwell, J. Lapointe, **S. Raymond**, J. Fraser, S. Haffouz, and S. Rolfe, “GaN nanostructures and HFET structures selectively grown on silicon substrates by ammonia-MBE”, *J. Cryst. Growth* 301-302, 442-446 (2007).

E. S. M. Ali and **D.W.O. Rogers**, “Efficiency improvements of x-ray simulations in EGSnrc user-codes using Bremsstrahlung Cross Section Enhancement (BCSE)”, *Med. Phys.* 34, 2143 - 2154 (2007).

I. J. Chetty, B. Curran, J. Cygler, J. J. DeMarco, G. Ezzell, B. A. Faddegon, I. Kawrakow, P. J. Keall, H. Liu, C. M. C. Ma, **D.W.O. Rogers**, J. Seuntjens, D. Sheikh-Bagheri, and J. V. Siebers, “Report of the AAPM Task Group No. 105: Issues associated with clinical implementation of Monte Carlo-based photon and electron external beam treatment planning”, *Med. Phys.* 34, 4818 -4853 (2007).

R. E. P. Taylor, G. Yegin, and **D.W.O. Rogers**, “Benchmarking BrachyDose: voxel-based EGSnrc Monte Carlo calculations of TG-43 dosimetry parameters”, *Med. Phys.* 34, 445 - 457 (2007).

L. L. W. Wang and **D.W.O. Rogers**, “Monte Carlo Study of Si Diode Response in Electron Beams”, *Med. Phys.* 34, 1734 -1742 (2007).

J. F. Wheeldon, T. Hall, and **H. Schriemer**, “Symmetry constraints and the existence of Bloch mode vortices in linear photonic crystals”, *Optics Express* 15, 3531-3542, (2007).

M. Bertrand and **G. W. Slater**, “Tethered Polyelectrolytes under the Action of an Electrical Field: A Molecular Dynamics Study”, *The European Physical Journal E* 23, 83–89 (2007).

S. Casault and **G. W. Slater**, “Combinatorial design of passive drug delivery platforms”, *International Journal of Pharmaceutics* 339, 91–102 (2007).

O. A. Hickey and **G. W. Slater**, “The Diffusion Coefficient of a Polymer in an Array of Obstacles is a Non-Monotonic Function of the Degree of Disorder in the Medium”, *Phys. Letters A* 364, 448-452 (2007).

L. C. McCormick and **G. W. Slater**, “Molecular deformation and free solution electrophoresis of DNA-uncharged polymer conjugates at high field strengths: Theoretical predictions. Part 1: Hydrodynamic segregation”, *Electrophoresis* 28, 674–682 (2007).

L. C. McCormick and **G. W. Slater**, “Molecular deformation and free solution electrophoresis of DNA-uncharged polymer conjugates at high field strengths: Theoretical predictions. Part 2: Stretching”, *Electrophoresis* 28, 3837–3844 (2007).

S. Nedelcu and **G. W. Slater**, “Electric and hydrodynamic stretching of DNA-polymer conjugates in free-solution electrophoresis”, *J. Chem. Phys.* 126, 175104, 1–11 (2007).

**Z.M. Stadnik**, K. Al-Qadi K. and P. Wang, 2007, "Magnetic Properties and  $^{155}\text{Gd}$  Mössbauer Spectroscopy of the Icosahedral Quasicrystal  $\text{Ag}_{50}\text{In}_{36}\text{Gd}_{14}$ ", *J. Phys. Condens. Matter.* 19, 326208-1--26208-11 (2007).

P. Wang and **Z.M. Stadnik**, "Magnetic Properties and  $^{155}\text{Gd}$  Mössbauer Spectroscopy of the Rare-Earth Heusler Compound  $\text{Cu}_2\text{GdIn}$ ", *J. Phys. Condens. Matter.* 19, 346235-1--346235-10 (2007).

A.M.D. Lee, J.D. Coe, S. Ullrich, M.-L. Ho, S.-J. Lee, B.-M. Cheng, M.Z. Zgierski, I-C. Chen, T.J. Martinez, **A. Stolow**, "Substituent effects on dynamics at conical intersections: alpha,beta-enones", *Journal of Physical Chemistry A* 111, 11948 (2007).

N. Gador, E. Samoylova, V.R. Smith, **A. Stolow**, D.M. Rayner, W. Radloff, I.V. Hertel, T. Schultz, "Electronic Structure of Adenine and Thymine Base Pairs Studied by Femtosecond Electron-Ion Coincidence Spectroscopy", *Journal of Physical Chemistry A* 111, 11743 (2007).

H.R. Hudock, B.G. Levine, A.L. Thompson, H. Satzger, D. Townsend, N. Gador, S. Ullrich, **A. Stolow**, T.J. Martinez, "Ab Initio Molecular Dynamics and Time-Resolved Photoelectron Spectroscopy of Electronically Excited Uracil and Thymine", *Journal of Physical Chemistry A* 111, 8500 (2007).

M. Noestheden, Q. Hu, L-L. Tay, A.M. Tonary, **A. Stolow**, R. MacKenzie, J. Tanha, J.P. Pezacki, "Synthesis and characterization of CN-modified protein analogues as potential vibrational contrast agents", *Bioorganic Chemistry* 35, 284, (2007).

F. Gao, D.D. Klug and **J.S. Tse**, "Theoretical study of new Superhard Materials:  $\text{B}_4\text{C}_3$ ", *J. Appl. Phys.* 102, 084311 (2007).

Lévesque P-O. Bertrand, N. Blouin, M. Leclerc, S. Zecchin, G. Zotti, C.I. Ratcliffe, D.D. Klug, X. Gao, F. Gao and **J.S. Tse**, "Synthesis and thermoelectric properties of polycarbazole, polyindolocarbazole and polydiindolocarbazole derivatives », *Chem. Mat.* 19, 2128 (2007).

Y. Ma and **J.S. Tse**, "Ab initio determination of crystal lattice constants and thermal expansion for Germanium Isotopes", *Solid State Comm.* 143, 161, (2007).

D.M. Shaw, M. Odelius, **J.S. Tse**, "Utility of High Performance Computing Facilities for the Calculation of the Theoretical X-ray Absorption Spectra of Solids", 21st International Symposium on High Performance Computing Systems and Applications, 4-4, May, 2007, IEEE Computer Society.

D.M. Shaw, M. Odelius and **J.S. Tse**, "Theoretical X-ray absorption investigation of the uniaxial compression of hexagonal graphite", *Can. J. Chem.* 85, 837 (2007).

D.M. Shaw and **J.S. Tse**, "Theoretical X-ray absorption investigation of high pressure ice and compressed graphite", *J. Phys. Cond. Mat.* 19, 425211 (2007).

H. Sternemann, C. Sternemann, **J.S. Tse**, **S. Desgreniers**, Y.Q. Cai, G. Vanko, N. Hiraoka, A. Schacht, J.A. Soininen, M. Tolan, "Giant dipole resonance of Ba in Ba<sub>8</sub>Si<sub>46</sub>: An approach for studying high-pressure induced phase transitions of nanostructured materials". *Phys. Rev. B* 75, 245102 (2007).

**J. S. Tse**, R. Flacau, **S. Desgreniers**, T. Iitaka, and J.Z. Jiang, "Electron Density Topology of High Pressure Ba<sub>8</sub>Si<sub>46</sub> from Maximum Entropy Analysis", *Phys. Rev. B* 76, 174109 (2007)

**J. S. Tse**, D.D. Klug, **S. Desgreniers**, J.S. Smith, R. Flacau, Z. Liu, J. Hu, N. Chen and D.T. Jiang, "Structural Phase Transition in CaH<sub>2</sub> at High Pressures", *Phys. Rev. B* 75, 134108 (2007).

**J.S. Tse** and D. Shaw, "Vibrational dynamics in H<sup>+</sup>-substituted forsterite: A First Principles Molecular Dynamics", *Am. Mineral.* 92, 1593, (2007).

**J.S. Tse**, Y. Song and Z. Liu, "Effects of Temperature and Pressure on ZDDP", *Tribiol. Lett.* 28, 45 (2007).

**J.S. Tse**, Y. Yao and Y. Ma, "Superconductivity in high pressure solids", *J.Phys. Cond Mat.* 19, 425208 (2007).

**J.S. Tse**, Y. Yao and K. Tanaka, "Novel superconductivity in metallic SnH<sub>4</sub> under high pressure", *Phys. Rev. Lett.* 98, 117004 (2007).

M. Volmer, C. Sternemann, **J.S. Tse**, T. Buslaps, N. Hiraoka, M. Paulus, C. Bull and P.F. McMillan, "Charge transfer in silicon clathrates studied by Compton scattering", *Phys. Rev B* 76, 233104 (2007).

J.J. Yang, **J.S. Tse** and T. Iitaka, "First-principles investigation on the geometry and electronic structure of the tree-dimensional cuboidal C<sub>60</sub> polymer", *J. Chem. Phys.* 127, 134906 (2007).

J.J. Yang, **J.S. Tse**, Y. Yao and T. Iitaka, "Structural and Electronic Properties of Pristine and Ba-doped Clathrate-like Carbon Fullerenes", *Angewandte Chemie* 46, 6275 (2007).

Y. Yao and **J.S. Tse**, "Electron Phonon Coupling in the High Pressure hcp phase of Xe: A First Principles Study", *Phys. Rev. B* 75, 134104 (2007).

Y. Yao, **J.S. Tse**, Y. Ma and K. Tanaka, "Superconductivity in high-pressure SiH<sub>4</sub>", *Europhys. Lett.* 78, 37003 (2007).

Y. Xie, **J.S. Tse**, T. Cui, A.R. Oganov, Z. He, Y. Ma, and G. Zou, "Electronic and phonon instabilities in face-centered-cubic alkali metals under pressure studied using ab initio calculations", *Phys. Rev. B* 75, 064102 (2007).

A. Staudte, C. Ruiz, M. Schöffler, S. Schössler, D. Zeidler, T. Weber, M. Meckel, **D. Villeneuve**, **P. Corkum**, A. Becker and R. Dörner, "Binary and recoil collisions in strong field double ionization of helium", *Phys. Rev. Lett.* 99, 263001 (2007).

A. Staudte, D. Pavicic, S. Chelkowski, D. Zeidler, M. Meckel, H. Nikura, M. Schöffler, S. Schlösser, B. Ulrich, P.P. Rajeev, T. Weber, T. Janhke, **D. Villeneuve**, A.D. Bandrauk, C.L.Cocke, **P. Corkum** and R. Dörner, “Attosecond strobing of two-surface population dynamics in dissociating  $H_2^+$ ”, Phys. Rev. Lett. 98, 073003 (2007).

Y. Mairesse, N. Duvoich, J. Levesque, D. Kartashov, **D.Villeneuve**, **P. Corkum** and T. Auguste, “Transient phase masks in high-harmonic generation”, Optics Lett. 32, 436 (2007).

**D. Villeneuve**, “Attophysics at a glance”, Nature 449, 997 (2007).

**M. Vinciter**, “Construction, assembly and testing of the ATLAS hadronic end-cap calorimeter”, D.M. Gingrich et al., JINST 2:P05005, 2007.

R. Cook, G. Carnes, T-Y Lee, and **R.G. Wells**, “Respiratory-Averaged CT for Attenuation Correction in Canine Cardiac PET/C”, J. Nucl. Med. 48, 811-818 (2007).

Z. Gao, **D. Wilkins**, L. Eapen, C. Morash, Y. Wassef, **L. Gerig**. “A study of prostate delineation referenced against a gold standard created from the visible human data”, Radiotherapy and Oncology 85, 239-246, 2007.

L.M. Garcia, **D. Wilkins**, **G.P. Raaphorst**, “ $\alpha/\beta$  ratio: A dose range dependence study”, International Journal of Radiation Oncology, Biology, Physics 67, 587-593, 2007.

G.A. Alexander, H.M. Swartz, S.A. Amundson, W.F. Blakely, B. Buddemeier, B. Gallez, N. Dainiak, R.E. Goans, R.B. Hayes, P.C. Lowry, M.A. Noska, P. Okunieff, A.L. Salner, D.A. Schauer, F. Trompier, K. W. Turteltaub, P. Voisin, A.L. Wiley Jr. and **R. Wilkins**, BiodosEPR-2006 Meeting: “Acute dosimetry consensus committee recommendations on biodosimetry applications in events involving uses of radiation by terrorists and radiation accidents”. Radiation Measurements 42, 972-996 (2007).

V. Chauhan, A. Mariampillai, B. Kutzner, **R. Wilkins**, C. Ferrarotto, P. Bellier, L. Marro, G. Gajda, E. Lemay, A. Thansandote and J. McNamee, “Evaluating the biological effects of intermittent 1.9 GHz pulse-modulated radiofrequency fields in a series of human-derived cell lines”, Radiation Research. 16, 87-93, (2007).

S.M. Miller, C.L. Ferrarotto, **R.Wilkins.**, J.-A. Dolling and D.R. Boreham, “Canadian Cytogenetic Emergency Network (CEN) for biological dosimetry following radiological/nuclear accidents”, International Journal of Radiation Biology 83, 471-477 (2007).

D. Wilkinson, T. Segura, L. Prud'homme-Lalonde, D. Mullins, S. Lachapelle S. Qutob, E. Thorleifson, **R. Wilkins**, D. Morrison and D. Boreham, “Canadian Biodosimetry Capacity”, Radiation Measurements 42, 1128 – 1132 (2007).

M. W. McCutcheon, J.F. Young, G.W. Rieger, D. Dalacu, S. Frederick, P.J. Poole, and **R.L. Williams**, “Experimental demonstration of second-order processes in photonic crystal microcavities at submilliwatt excitation powers”, Phys. Rev. B Condensed Matter and Materials Physics 76, 245104-1-6 (2007).

C. Grillet, C. Monat, C.L.C. Smith, B.J. Eggleton, D.J. Moss, S. Frédérick, D. Dalacu, P.J. Poole, J. Lapointe, G.C. Aers, and **R.L. Williams**, “Nanowire coupling to photonic crystal nanocavities for single photon sources”, *Opt. Express* 15, 1267 (2007).

S. Frederick, D. Dalacu, D. Kim, P. Poole, G.C. Aers, and **R.L. Williams**, “Single Photon Sources for Quantum Cryptography and Quantum Computing”, *Physics in Canada*, 63, 207-214 (2007).

**C.J. Willott**, P. Delorme, A. Omont, and 15 colleagues, “Four Quasars above Redshift 6 Discovered by the Canada-France High-z Quasar Survey”, *Astronomical Journal* 134, 2435-2450 (2007).

**C.J. Willott**, R.J. Ivison, T.R. Greve, J.S. Dunlop and 35 colleagues, “The SCUBA HALF Degree Extragalactic Survey - III. Identification of radio and mid-infrared counterparts to submillimetre galaxies”, *Monthly Notices of the Royal Astronomical Society* 380, 199-228 (2007).

**C.J. Willott**, A. Martinez-Sansigre and S. Rawlings, “Molecular Gas Observations of the Reddened Quasar 3C 318”, *Astronomical Journal* 133, 564-567 (2007).

J.L. Ducote, **T. Xu** and S.Molloi, “Dual-energy cardiac imaging: an image quality and dose comparison for a flat-panel detector and x-ray image intensifier”, *Phys. Med. Biol.* 2007, 52 183-196 (2007).

**ILC Collaboration, Carleton Members:** M.S. Dixit, A. Bellerive, N. Shiell, E. Hill

**ILC Collaboration:** (D.C. Arogancia et al), “Performance of MPGD-based TPC prototypes for the linear collider experiment”, *Nuclear Instruments and Methods in Physics Research A* 581, 265 (2007).

**ILC Collaboration:** (M. Dixit et al.), “Micromegas TPC resolution at high magnetic fields using the charge dispersion signal”, arXiv:physics/0703263v1 and *Nuclear Instruments and Methods in Physics Research A* 581, 254 (2007).

**ILC Collaboration:** (K. Boudjemline, et al.), “Spatial resolution of a GEM readout TPC using the charge dispersion signal”, *Nuclear Instruments and Methods in Physics Research A* 574, 22 (2007).

**SNO Collaboration, Carleton Members:** A.Bellerive, D.Sinclair, R.J.Hemingway, K.Graham, P.Watson, K. Boudjemline, F.Zhang, P-L.Drouin, E.Rollin, O.Simard, G.Tesic

**SNO Collaboration:** “Determination of the  $\nu_{e}$  and Total 8B Solar Neutrino Fluxes with the Sudbury Neutrino Observatory Phase I Data Set”, *Phys. Rev. C* 75 045502 (2007).

## Book Chapters in 2007

Springer: a special volume of ASI proceedings on ADVANCED STUDY INSTITUTE OPTICAL WAVEGUIDE SENSING & IMAGING in Medicine, Environment, Security and Defense (2007) Page 101-125. "Development of the distributed Brillouin sensors for health monitoring of civil structures" by **X. Bao, L. Chen.**

Multi-Science Publishing Co. Ltd, England: "Monitoring technologies for bridge management: state-of-the-art " (2007) , in *Fiber Optics Sensors*, Rod C. Tennyson, **X. Bao**, Doug Thompson (30 pages).

"Characterization of optical fibers", **L. Chen**, J. Cameron and **X. Bao**, in *The Hand Book of Computer Networks, Volume I: Key Concepts, Data Transmission, Digital and Optical Networks*, Hossein Bidgoli (eds) 2007 Wiley.

M. Thomas, M.S. MacPherson, **B.G. Clark.** "Implementation of image-guidance techniques in radiotherapy", 10<sup>th</sup> International Conference for Advanced Technology and particle Physics, Como, Italy, October 2007.

L. Buckley, **J.E. Cygler.** "Brachytherapy Current and Future Trends" in "Current Trends and Technologies in Radiation Therapy, CAMRT course.

**P. Hawrylak,**"Quantum Information – Future of Microelectronics?", pp.19-28, in *Future Trends in Microelectronics-Up the Nano Creek*, JohnWiley&Sons (2007), Serge Luryi, Jimmy Xu, and Alex Zaslavsky, Editors.

## Invited Conference Talks in 2007

**X. Bao**, May 2, ISIS Canada Public Forum, "Concrete Pavements: Structural Health Monitoring using Fibre Optical Sensors".

**X. Bao**, May 16-20, Keynote speaker for the symposium of the distributed Brillouin sensors for different applications, Hangzhou, China.

**X. Bao**, May 26, "New Sensor technology for Civil Engineering Structures", World Forum on Smart Materials and Smart Structures Technology (SMSST '07).

**X. Bao**, June 15, "Fiber sensors in Geological applications" -9<sup>th</sup> GEOIDE Annual Conference in Halifax.

**X. Bao**, C. Zhang, I. F. Ozkan, M. Mohareb, W. Li, F. Ravet and **L. Chen**, "Recent advances in the fiberoptic sensors based on stimulated Brillouin scattering", July 2007, The 12th Opto

Electronics and Communications Conference (OECC 2007)/16th International Conference on Integrated Optics and Optical Fiber Communication (IOOC) Pacifico Yokohama.

**X. Bao** and S. Yang, July 31, “Repetition-Rate-Multiplication of 40GHz actively mode-Locking fiber laser”, invited talk at Workshop on Ultrafast Lasers in 2007 International Symposium on Signals, Systems, and Electronics. Montreal.

**X. Bao**, Oct 19, OSMG2007, Keynote Speaker, “Distributed fiber sensors and their applications in linear engineering”.

**X. Bao** and Yun Li, “The hole-burning of the Brillouin loss/gain spectrum in two DFB lasers based distributed sensors”. Invited talk, SMSST 2007.

**X. Bao**, C. Zhang, W. Li, F. Ozkan, M. Mohareb, “Using distributed Brillouin sensor to predict pipe deformation with carbon coated fibers” Keynote speaker at The 2nd International Workshop on Optoelectronic Sensor-based Monitoring in Geo-engineering, Nanjing, China, Oct. 18-19, 2007.

**X. Bao**, Z. Zhang, D. Waddy and **L. Chen**, “Measuring Tide and Vibration of the submarine and aerial fibers by polarization mode dispersion”, invited talk at OFSCN2006 Proc. Of SPIE, 6595, 659536 (1-6), 2007.

**A. Bellerive**, “TPC Readout Development with Charge Dispersion Signal”, 10th ICATPP Conference on “Astroparticle, Particle, Space Physics, Detectors and Medical Physics Applications”, Como, Italy, October 2007.

**A. Bellerive**, “TPC Readout Development with a Resistive Anode”, MPGD Workshop, CERN, Geneva, Switzerland, September 2007.

**A. Bellerive**, “From SNO to SNOLAB”, 10th ICATPP Conference on “Astroparticle, Particle, Space Physics, Detectors and Medical Physics Applications”, Como, Italy, October 2007.

**R.V. Bhardwaj**, CAP Congress, Saskatoon, “Femtosecond laser induced nanostructures in glass: role of transient plasmonics”, June 2007.

**T. Brabec**, “Few-body dynamics in intense fields,” Applications of High Fields and Short Wavelengths Sources XII, 2007.

**T. Brabec**, “Complex systems in intense fields,” Attosecond workshop Dresden 2007.

**T. Brabec**, “Quantum few-body dynamics in intense fields, Gordon Conference on Density Functional theory, 2007.

S. Sukiasyan and **T. Brabec**, “Recollision ionization in few-body systems,” LPHYS07.

Z. Zhao and **T. Brabec**, “Tunnel ionization in complex systems,” J. Mod. Opt. special issue 54, 981 (2007).

C. Footitt, G.O. Cron, **I.G. Cameron**, “Noise Bias Correction Improves the Accuracy of Low SNR Dynamic Contrast Enhanced Perfusion MRI”, Canadian Organization of Medical Physicists, Toronto, Oct. 2007.

A. Cardenas-Blanco, M. Nezamzadeh, C. Footitt, **I.G. Cameron**, “Accurate Noise Bias Correction Applied to Individual Pixels”, International Society of Magnetic Resonance in Medicine, Berlin, May 2007.

**K. Chen**, L. Zhao, P. Au, R. Kearsey, D. Seo, S. Yandt and J. Tang, J., “Research activities on Ni-base superalloys at the National Research Council Canada”, in 11<sup>th</sup> International Symposium on Advanced Superalloys – Production and Application, Shanghai, P. R. China, May 21-25, 2007 (CPR-PL-2007-0057) (Plenary invited presentation).

**P. Corkum**, South East Ultrafast Conference, Nashville, TN. January 11-12, Plenary lecture, “Attosecond Science and Technology”.

**P. Corkum**, Ohio State Lecture Series on Spectroscopy Jan 31-Feb 2: Three lectures course on attosecond spectroscopy: “Attosecond Optical Science, Attosecond technology and collision science, High Harmonic Transient Grating Spectroscopy”.

**P. Corkum**, APS March Meeting, Denver Colorado, March 7-9, Invited Talk, “Transient Grating Interferometry with Re-collision Electrons”.

**P. Corkum**, University of Central Florida, Invited Lecturer for Industrial Affiliates Day, April 13 “Attosecond Technology”.

**P. Corkum**, 20<sup>th</sup> anniversary celebration Laser-Laboratorium 1987-2007, Gottingen, Germany, April 25-26, Plenary lecture, “Attosecond Electron Interferometry”.

**P. Corkum**, CLEO, Baltimore MD. May 7-11, Tutorial, “Attosecond pulses – a new Frontiers in Metrology”.

**P. Corkum**, Cross Boarder Workshop, Toronto, Canada, Invited Lecture “Attosecond Science”.

**P. Corkum**, Annual conference of APS’ Division of Atomic, Molecular and Optical Physics , Calgary, Al May 16-20, Invited Talk, “Control and Measurement of Attosecond Pulses”.

**P. Corkum**, Annual conference of APS’ Division of Atomic, Molecular and Optical Physics , Calgary, Al May 16-20, Public Lecture, “Control and Measurement of Attosecond Pulses”.

**P. Corkum**, Multiphoton Gordon Conference, Tilton, Mass, USA June 11-16, Invited Talk, “Control and Measurement of Attosecond Pulses”.

**P. Corkum**, Femtochemistry and Femtobiology 08, Oxford, U.K. July 22-27, Invited Talk, “Electron Interferometry and Transient Grating Spectroscopy with High Harmonics”.

**P. Corkum**, 15th International Conference on Vacuum Ultraviolet Radiation Physics, July 29-August 3, Plenary Lecture, “Attosecond Science and Technology”.

**P. Corkum**, Quantum Control Gordon Conference, Newport, R.I. USA, August 13-17, Invited Talk “Control and Measurement of Attosecond Pulses”.

**P. Corkum**, Royal Society Conference on Atoms, Photons and Q-bits, London, UK Sept 3-5, Plenary Lecture, “Multiphoton Physics in Transparent Dielectrics”.

**P. Corkum**, International Conference on Ultra-Intense Laser Interaction Sciences, Bordeaux, France, October 1-5, Plenary Lecture, “Attosecond Science and Technology”.

**P. Corkum**, Workshop on Future X-ray Sources, Berkeley, CA, Oct 8-10, Plenary Lecture “Attosecond XUV Pulse Generation”.

**P. Corkum**, Wayne State University, Detroit, MI, Nov 5, Frontiers in Chemistry Lecturer, “Laser Induced Imaging”

**J.E. Cygler**, “Head and Neck Brachytherapy”. 28<sup>th</sup> Annual Meeting of ABS, Chicago, USA 29 April – 01 May.

**J.E. Cygler**, “4D In vivo Dosimetry in Radiotherapy”. MOSFET Users Meeting at AAPM Annual Meeting, Minneapolis, USA 17 July.

**J.E. Cygler**, “Validation of Monte Carlo dose calculations in PrecisePlan treatment planning software”. Elekta Users Meeting at 9<sup>th</sup> Biennial ESTRO Meeting on Physics and Radiation Technology for Clinical Radiotherapy, Barcelona, Spain, 7 September.

**J.E. Cygler**, “Clinical implementation of Monte Carlo methods for external electron therapy”. Pre-meeting workshop on “dose calculations for external photon and electron beam therapy – today and in the future”, Barcelona, Spain, 8-9 September.

**J.E. Cygler**, “In-vivo Dosimetry in Brachytherapy”. 9<sup>th</sup> Biennial ESTRO Meeting on Physics and Radiation Technology for Clinical Radiotherapy, Barcelona, Spain, 8-13 September.

**J.E. Cygler**, “Characterization of OSL detectors in external high-energy photon beams”. IAEA consultants Meeting on in vivo dosimetry, Vienna, Austria, 15-19 October.

A. Viamonte Marin, L. Ribeiro da Rosa, L.A. Buckley, A. Cherpak, **J.E. Cygler**. “Evaluation of a commercial OSL dosimetry system for in-vivo measurements”. COMP/CARO Joint Annual Scientific Meeting, Toronto, ON, 9 – 13 October.

**S. Desgreniers**. “Dense  $\epsilon$  and  $\zeta$  phase of Oxygen: New results”. IUCr HP Workshop 2007, Oxford, UK Sept. 2007.

**S. Desgreniers**. “Synchrotron Radiation: An Extraordinary Tool to Probe the Solid State at Extreme Conditions” 2007 CLS Annual User,s Meeting, Saskatoon SK (June 2007).

**M. Dixit**, “Micromegas TPC prototype results & Electronics Developments”, ILC Detectors Tracking Review, ACFA & GDE Meeting, Beijing, February 2007.

**M. Dixit**, “Gaseous Tracker R&D”, ILC Detector Test Beam Workshop, Fermilab, Batavia, January, 2007.

**M. Dixit**, “Charge Dispersion in Micro Pattern Gas Detectors with a Resistive Anode”, Special focus workshop on New Developments in Micro- Pattern Gas Detectors, 2007 IEEE Nuclear Science Symposium & Medical Imaging Conference, Hawaii, October 2007.

**P. Finnie**, K. Kaminska, D. G. Austing, J. Lefebvre, “Optical imaging of Freely Suspended SWNTs: Fabrication, Characterization, Fundamentals, & Devices”, 9th International Conference on Atomically Controlled Surfaces, Interfaces and Nanostructures (ACSIN-9), November 11 - 15, 2007, Komaba Research Campus of The University of Tokyo, Tokyo, Japan.

**P. Finnie**, K. Kaminska, D. G. Austing, J. Lefebvre, “Deposition and Optical Imaging of Freely Suspended Carbon Nanotubes”, Symposium: Toward Bio-and Molecular Electronics, 48th Annual Symposium of the Vacuum Society of Japan, Nov. 14-16, 2007, Gakushuin University, Tokyo, Japan.

E. Ghasroddashti, J. Pantarotto, R. MacRae, **L.H. Gerig**, “The Reliability of Surrogates in Predicting Tumour Motion: A comparison of surrogate based and non-surrogate based approach”. 49<sup>th</sup> Annual Meeting, Minneapolis, USA, 22-26 July.

J. Szanto, E. Ghasroddashti, B. Nyiri, J. Pantarotta, R. MacRae, **L.H. Gerig**, “Inter and intra fraction reliability of three surrogates of tumour motion”. 9<sup>th</sup> Biennial ESTRO Meeting on Physics and Radiation Technology for Clinical Radiotherapy, Barcelona, Spain, 8-13 September.

L.M. Garcia, **L.H. Gerig**, **G.P. Raaphorst**, D.E. Wilkins, “Field Junctions with Helical Tomotherapy”. COMP/CARO Joint Annual Scientific Meeting, Toronto, ON, 9 – 13 October.

L. Montgomery, G. Fox, K. Carty, **L.H. Gerig**, S. Hamilton, A. Patry, L. Grimard, M.S. MacPherson, “Impact of a Full Scope-of-Practice Model on an Image Guided IMRT Program”. COMP/CARO Joint Annual Scientific Meeting, Toronto, ON, 9 – 13 October.

M. Thomas, M.S. MacPherson, K. Carty, **L.H. Gerig**, L. Montgomery, **B.G. Clark**, “The case for daily prostate imaging: a diachronic study based on megavoltage computer tomography”. COMP/CARO Joint Annual Scientific Meeting, Toronto, ON, 9 – 13 October.

**S. Godfrey**, “Disentangling the Origins of New Gauge Bosons at the ILC”, International Workshop on Spontaneous Parity Violation and the ILC, IHEP Beijing, June 11-12, 2007.

**S. Godfrey**, “Discovery and Identification of New Neutral Gauge Bosons at the ILC”, Vic Elias Memorial Conference, University of Western Ontario, London Canada, May 28-30, 2007.

**J. Harden**, “Dynamical Evolution of Shear Recovery in Concentrated Gels and Nanoemulsions”, Argonne National Laboratories, APS Users Meeting, Chicago, IL, May 9, 2007.

**J. Harden**, “Biomimetic hydrogel scaffolds from modular artificial proteins”, TERMIS NA 2007, Toronto, ON, June 16, 2007.

**J. Harden**, “An associating macromolecular model for the endothelial surface layer”, Annual meeting of the Canadian Association of Physicists, Saskatoon, SK, June 20, 2007.

**P. Hawrylak**, “Quantum dots-laboratory for correlated electron systems”, 43<sup>rd</sup> Karpacz International School of Theoretical Physics, Ladek Zdroj, Poland, Feb.2007

**P. Hawrylak**, “Nanoscience with single electrons, spins and photons”, plenary talk, I Krajowa Konferencja Nanotechnologii, Wroclaw, Poland, April 2007.

**P. Hawrylak** “Quantum information –future of Microelectronics?” , 14<sup>th</sup> Semiconducting and Insulating Materials Conference, Fayetteville, AR, USA, May 2007.

**P. Hawrylak**, “Simulating complex oxides on a chip”, European Workshop on MultiFunctional Materials, Haholmen, Norway, June 2007.

**P. Hawrylak**, “Theory of semiconductor nanostructures in high magnetic fields”, International School: “Magnetic Fields for Science”, Cargese, France, Sept.2007.

**P. Hawrylak**, “Optical control of magnetism in semi-magnetic quantum dots”, International Workshop on Spin and Opto-electronics, Berlin, Germany, Sept.2007.

**P. Hawrylak**, “Quantum dot molecules-laboratory for correlated electron systems”, International Symposium on Atomtronics, Orenas, Sweden, Nov. 2007.

**P. Hawrylak**, “Electric field tuning of exciton-biexciton cascade in a single quantum dot for entangled photon pair generation”, MRS Symposium, Boston, MA, USA, Nov.2007.

**B.J. Jarosz**, “External Temperature Effects on Interstitial Instrumentation Therapeutic Heating”, IEEE Trans. Instrum. Meas., vol. 56, pp.113-117, 2007.

**B.J. Jarosz**, “Measurement of Acoustic Output of Ultrasound Instrumentation for Interstitial Thermal Therapy”, Proceedings, 24<sup>th</sup> IEEE Instrum. Meas. Techn. Conf., 1-3 May 2007, Warsaw, Poland, 41 (5pp), 2007.

B.W. King and **P.C. Johns**, “A sub-matrix method for extracting x-ray coherent scattering form factors from image plate data”, Proceedings of SPIE 6510, pages 6510-0R-1 - 6510-0R-12 (2007).

**B. Joós** and P. Wallace, “Educator and Pioneer of the Theoretical Physics Community”, Canadian Association of Physicists Annual Congress, June 17-20, 2007, Saskatoon.

**B. Joós**, “Microstructure and aging of a polymer glass subjected to instantaneous shear strains”, International Workshop on Mechanical Behaviour of Glassy Materials, July 21-23, 2007, University of British Columbia.

**M. Kaern**, Workshop on Deconstructing Biochemical Networks, University of Montreal, Montreal.

**M. Kaern**, Minicourse on Quantitative Biology, University of Montreal, Montreal.

**M. Kaern**, BIRS Workshop on Stochasticity in Biochemical Networks, Keynote Presenter, University of Toronto GBB Retreat.

**H. Logan**, “Higgs Theory”, invited plenary talk, Workshop on the LHC Early Phase for the ILC, Fermilab, April 2007.

**H. Logan**, “LHC Phenomenology”, Canadian Association of Physicists (CAP) Congress 2007, University of Saskatchewan, June 2007.

**H. Logan**, “Discovery scenarios for the first 10 fb<sup>-1</sup>”, 6th ATLAS Canada Physics Workshop, University of Regina, August 2007.

**H. Logan**, “Neutrinos and extended Higgs sectors”, TRIUMF Workshop on TeV-scale Physics and Neutrino Masses, October 2007.

**H. Logan**, “Higgs decays to invisible modes at the LHC and ILC”, Joint Meeting of the American Linear Collider Physics Group and ILC Global Design Effort (ALCPG'07), Fermilab, October 2007.

**H. Logan**, “Effects of theory uncertainties in Higgs coupling measurements at the ILC”, Joint Meeting of the American Linear Collider Physics Group and ILC Global Design Effort (ALCPG'07), Fermilab, October 2007.

**A. Longtin**, Noise in Life meeting at the Max Planck Institute for Physics of Complex Systems, Dresden, Nov. 2007.

**A. Longtin**, Biocomp2007: Collective Dynamics: Topics on Competition and Cooperation in the Biosciences, Vietri sul Mare, Italy, September 2007.

**A. Longtin**, Bernstein Center meeting on Object Localization, Munich (Ammersee), September 2007.

**A. Longtin**, 8th International Congress of Neuroethology, satellite meeting on Electrosensory Systems, Vancouver, July 2007.

**A. Longtin**, Workshop on Information theory in neuroscience, Fields Institute, U. Toronto, July 2007.

**A. Longtin**, Annual meeting, Computational Neurosciences, Plenary talk, U. Toronto, July 2007.

**A. Longtin**, Perspectives for Future Directions in Computational and Mathematical Neuroscience, Fields Institute, U. Toronto, June 2007.

**A. Longtin**, Frontiers in Applied and Computational Mathematics, New Jersey Inst. Technology, May 2007.

**A. Longtin**, Theoretical Neuroscience Workshop, U. Waterloo, April 2007.

**S. Mihailov**, D. Grobnic, R.B. Walker, H. Ding, F. Bilodeau and C.W. Smelser, "Femtosecond laser inscribed high temperature fiber Bragg grating sensors," invited paper presented at SPIE Optics East, Boston, MA September 9-12, 2007, paper 6770-08.

**S. Mihailov**, "Ultrafast Laser Fabrication of Bragg Grating Devices," invited presentation for the Workshop on Ultrafast Lasers, as part of the IEEE International Symposium on Signals, Systems and Electronics (ISSSE 2007), Montreal, July 30, 2007.

C.W. Smelser, **S. Mihailov**, D. Grobnic, "Fabrication of femtosecond laser induced Bragg gratings in amorphous and crystalline dielectric waveguides", invited talk presented at Photonics North, Ottawa ON, June 4-7, 2007 paper GWD-4-3-1.

**R. Munger**, "How to Develop a Collaborative Clinical Relationship", BioNorth 2007.

D. Poitras, C.C. Kuo, **C. Py**, L. Li., "High-Contrast OLED with Microcavity Effect", in Optical Interference Coatings, The Optical Society of America, Washington, DC, 2007.

**C. Py**, M. Denhoff, S. Laframboise, J. Caballero, G. Mealing, M. Bani, R. Monette, T. Ahuja and R. Tremblay, "Monitoring of synthetic neuronal networks by an integrated patch-clamp chip", Lab on Chip World Congress, Edinburgh, Scotland, May 15-16 2007.

**C. Py**, "Patch-clamp chip: a new tool to study neurodegenerative diseases and assist drug development", Institut d'Alembert, ENS Cachan, France, May 14, 2007.

**L. Ramunno**, C. Jungreuthmayer and **T. Brabec**, " Intense laser-cluster interaction in the strong coupling regime", Laser Phys. 17, 618 (2007).

**D.W.O. Rogers**, "Applications of Monte Carlo simulations to radiation dosimetry", at the McGill International Workshop on Monte Carlo Techniques, May 30, 2007.

**D.W.O. Rogers**, "The BrachyDose code for fast Monte Carlo dose calculations for brachytherapy", at the Nucletron Conference on Optimal Use of Advanced Radiotherapy in Multimodality Oncology, in Rome, Italy, June 20, 2007.

**D.W.O. Rogers**, “An introduction to the TG-105 Report: Issues associated with the implementation of Monte Carlo-based photon and electron external beam treatment planning”, at the 2007 AAPM annual meeting in Minneapolis, July 23, 2007.

**D.W.O. Rogers**, “Writing and reviewing papers for the journal Medical Physics”, at the 2007 AAPM annual meeting in Minneapolis, July 23, 2007.

**D.W.O. Rogers**, “Physics of the TG-51 protocol”, at the 2007 AAPM annual meeting in Minneapolis, July 25, 2007.

**D.W.O. Rogers**, “BEAMnrc: a code to simulate radiotherapy external beam sources”, at the IAEA sponsored Workshop on Nuclear Data for Science and Technology: Medical Applications held at the International Centre for Theoretical Physics in Trieste Italy, Nov 12-15, 2007.

**D.W.O. Rogers**, “Variance reduction techniques used in BEAMnrc”, at the IAEA sponsored Workshop on Nuclear Data for Science and Technology: Medical Applications held at the International Centre for Theoretical Physics in Trieste Italy, Nov 12-15, 2007.

**D.W.O. Rogers**, “Applications of Monte Carlo simulations to radiation dosimetry”, at the IAEA sponsored Workshop on Nuclear Data for Science and Technology: Medical Applications held at the International Centre for Theoretical Physics in Trieste Italy, Nov 12-15, 2007.

**D.W.O. Rogers**, “Monte Carlo simulations for brachytherapy”, at the IAEA sponsored Workshop on Nuclear Data for Science and Technology: Medical Applications held at the International Centre for Theoretical Physics in Trieste Italy, Nov 12-15, 2007.

**G. W. Slater**, “Cybercolonies: bacteria as autonomous agents living in a society”. Invited oral presentation at the Inaugural Symposium for Biome Canada, Ottawa, 18 May, 2007.

**G. W. Slater**, “Diffusion, Biophysics and “exact” models: more RAM please!”. Invited keynote talk at the Canadian Undergraduate Physics Conference (CUPC), Oct 13 2007, Simon Fraser U.

**G. W. Slater** (2007) “Science vs. Pseudo-Science and Junk Science”. Invited talk at the Annual Congress of the Canadian Association of Physicists”, Saskatoon, June 18.

F. Torres, M. Gauthier, J.-F. Mercier, **G. W. Slater**, “Diffusion in a Network of Square Cavities : Exact Numerical Results”. Oral presentation talk at the Annual Congress of the Canadian Association of Physicists”, Saskatoon, June 18, 2007.

**G.W. Slater**, “Diffusion and Biased Diffusion on a Lattice: Building Models and Replacing Monte Carlo Simulations by “Exact” Numerical Calculations”. MIT’s CDO Distinguished Speaker Series, Massachusetts Institute of Technology, March 14, 2007.

**G. W. Slater**, “ From industry to academia “ and “Negotiating your academic package”, Workshops presented at the AFMnet student and postdoc meeting. Gatineau, Jan 25, 2007.

**A. Stolow**, “Coherent Anti-Stokes Raman Scattering (CARS) Microscopy of Live Cells”,

Canada-Taiwan Bilateral Workshop on “Emerging Photonic Applications in Medicine”  
Taipei, Taiwan 13-14 November 2007.

**A. Stolow**, “Non-adiabatic Dynamics in Polyatomic Molecules”, Workshop on “Science for a New Class of Soft X-Ray Light Sources” University of California, Berkeley 8-10 October, 2007.

**A. Stolow**, “Femtosecond Molecular Science: Time, Phase, Intensity”,  
10<sup>th</sup> National Chemical Dynamics Meeting Dalian, China 20-24 September, 2007.

**A. Stolow**, “Dynamics and Control of Ultrafast Non-adiabatic Processes”, Femtochemistry & Femtobiology 8 Magdalen College, Oxford University Oxford UK, 22-27 July, 2007.

**A. Stolow**, Gordon Research Conference on Photochemistry Bryant University, Smithfield RI, USA  
8-13 July 2007 “Ultrafast Dynamics of Non-adiabatic Photochemistry and its Quantum Control”.

**A. Stolow**, “Non-perturbative Quantum Control via the Non-resonant Dynamic Stark Effect”,  
American Physical Society Meeting, Division of Atomic, Molecular & Optical Physics.  
Calgary, Alberta 5 – 9 June 2007.

**A. Stolow**, “Ultrafast Non-adiabatic Molecular Dynamics and its Quantum Control”, International  
Symposium on Molecular Beams Freiburg, Germany 27 May – 2 June 2007.

**A. Stolow**, “Quantum control via the Non-Resonant Dynamic Stark Effect”, Physics of Quantum  
Electronics Conference Snowbird, Utah, USA 5 January, 2007.

**J.S. Tse**, Workshop on Mineral Science, European Research Foundation (April, 2007) SMEC.

**J.S. Tse**, Studies under Extreme Conditions Conference, Miami (May, 2007).

**J.S. Tse**, Workshop on High pressure Science, Zhejiang University, China (May, 2007).

**J.S. Tse**, Canadian Chemical Congress, Winnipeg (May, 2007).

**J.S. Tse**, Canadian Association of Physics Conference, Workshop on Applications of  
Synchrotron Radiation, Saskatoon (June, 2007).

**J.S. Tse**, 4th International Conference on Materials for Advanced Technologies, Singapore (July,  
2007). The presentation was selected as one of the highlights of the conference.

**J.S. Tse**, WIEN2k Workshop, Institute of High Performance Computing, Singapore (July 2007).

**J.S. Tse**, Keynote, AIRAPT and EHPG (joint Association on the Advancement of High Pressure  
Science and Technology and European High Pressure Group) meeting, Catania, (September,  
2007).

**G. Wells**, “SPECT Imaging”, Presented at the GE Masters' Series on SPECT/CT held at the CSTAR conference facility, London, ON, on Sept 21, 2007.

**G. Wells**, “CT Basics”, Presented at the GE Masters' Series on SPECT/CT held at the CSTAR conference facility, London, ON, on Sept 21, 2007.

**G. Wells**, “OSEM: Iterative Reconstruction in SPECT”, Presented at the GE User Group Meeting: Myocardial Imaging Symposium at Niagara Falls, ON, on Sept 15, 2007.

**G. Wells**, “CTAC in Nuclear Medicine”, Presented at the Nuclear Cardiology for the Technologist Symposium at the Ottawa Heart Institute, Ottawa, ON, on May 26, 2007.

**G. Wells**, “CT Basics for Nuclear Medicine”, City-wide Nuclear Medicine Rounds at the Ottawa Hospital, Ottawa, ON, on April 11, 2007.

**D. Wilkins**, “Construction of a temporary bunker in Ottawa”, Association québécoise des physicien(ne)s médicaux cliniques, 4ième atelier de l'AQPMC, La radioprotection, 17 Nov 2007, Sherbrooke.

**R. Wilkins**, “Biological Dosimetry and Markers of Nuclear and Radiological Exposures”, Summer Symposium of the CBRN Research and Technology Initiative, Ottawa, ON, June.

**R. Wilkins**, “Triage biological dosimetry using the dicentric assay” in a Symposium on Triage biological dosimetry after a radiological event at the 13<sup>th</sup> International Congress of Radiation Research being held in San Francisco, CA, July.

**R. Wilkins**, “Canadian National Biological Dosimetry Response Plan (NBDRP)”, Global Health Security Initiative Ministerial Week Radiological and Nuclear Technical Experts' Working Group Meeting, Bethesda, MD, October.

**R. Wilkins**, “Expansion of the National Biological Dosimetry Response Plan (NBDRP) towards an International Network”, Federal/Provincial/Territorial Radiation Protection Committee, Ottawa, November.

**R.L. Williams**, “Directed Self-Assembly of Single Quantum Dot Optical Devices”, APS March Meeting 2007; Denver, Colorado.

**R. L. Williams**, “Scalable Routes to Entangled Photon Pair Sources –Gated InAs/InP Quantum Dots in Photonic Crystal Microcavities”, Frontiers in Nanophotonics and Plasmonics, Guarujá, SP Brazil, November 10-14 2007.

**D.M. Villeneuve**, FOM Annual Meeting Physics at Veldhoven, Veldhoven NL, 23-24 January 2007.

**D.M. Villeneuve**, American Physical Society, Annual Meeting, Tutorial Session, Denver CO, 4 March 2007.

**D.M. Villeneuve**, Canadian Association of Physicists, annual congress, Saskatoon SK, 17-20 June 2007.

**D.M. Villeneuve**, Attosecond Physics Workshop, Dresden Germany, 1-4 Aug 2007.

**D.M. Villeneuve**, Gordon Conference on X-ray Sources, Colby Sawyer College, 5-10 August 2007.

**D.M. Villeneuve**, Marie Curie Transfer of Knowledge workshop “High temporal and spectral resolution at short wavelengths”, FORTH-IESL, Heraklion, Crete, Greece, 30 November 2007.

### Publications in Refereed Conference Proceedings in 2007

**X. Bao**, C. Zhang, I.F. Ozkan, M. Mohareb, W. Li, F. Ravet, and **L. Chen**, “Recent Advances in the Fiber Optic Sensors Based on Stimulated Brillouin Scattering,” (invited), OECC/IOOC 2007 Technical Digest (12<sup>th</sup> Optoelectronics and Communications Conference, 16<sup>th</sup> International Conference on Integrated Optics and Optical Fiber Communication, 13C2-1 page 608-609 (2007).

S. M. Abuzariba, S. Hadjifaradji and **L. Chen**, “Analytical Optical Eye Diagram Evaluation for a System of Highly Coupled PMD/PDL Fiber and Lumped Sections,” Proc. SPIE Vol. 6796 pp.67962V-1 to 67962V-10 (2007).

V. P. Kalosha, **L. Chen** and **X. Bao**, “Slow light of sub-nanosecond pulses via SBS in non-uniform optical fibers”, International conference on coherent and nonlinear optics/International conference on lasers, applications and technologies, ICONO/LAT 2007 Minsk, Belarus May 28 - June 1 (2007).

V. P. Kalosha, **L. Chen**, and **X. Bao**, “Slow light of Gb/s bit streams via stimulated Brillouin scattering in non-uniform optical fibers” Slow and Fast Light (SL) 2007, paper JTUA9.

M. Yousaf Hamza, S. Tariq, and **L. Chen**, “Dispersion Compensation in the Presence of Nonlinearity in Optical Fiber Communications”, Communication Systems, 2006. ICCS 2006. 10<sup>th</sup> IEEE International Conference on. Oct. 2006 Pages 1-5, Digital object identifier 10.1109/ICCS2006.301421.

**P. Lu**, and **S. J. Mihailov**, “Power Penalty of Bragg Grating Based Optical Add-Drop Multiplexers in the Presence of Polarization Mode Dispersion and Polarization Dependent Loss”, BGPP 2007, paper JWA35, 2007.

**P. Lu**, **S. Mihailov**, **L. Chen** and **X. Bao**, “The statistics of PMD for an optical pulse and its relationship to pulse broadening,” Proc. SPIE Vol. 6796 pp. 679630-1 to 679630-5

(2007).

**S. Mihailov**, D. Grobnic, R.B. Walker, H. Ding, F. Bilodeau and C.W. Smelser, "Femtosecond laser inscribed high temperature fiber Bragg grating sensors," invited paper presented at SPIE Optics East, Boston, MA September 9-12, 2007, paper 6770-08.

X. Dai, **S. Mihailov**, C. Blanchetiere, C. Callender, "Temperature insensitive refractometer using TE and TM modes in open top ridge waveguides," SPIE Optics East, Boston, MA September 9-12, 2007, paper 6770-10.

D. Grobnic, **S. Mihailov** and C.W. Smelser, "High Birefringence Induced in SMF-28 Fiber by Femtosecond IR Laser Exposure of the Cladding with a Phase Mask ", OSA Bragg Grating, Photosensitivity and Poling Topical Meeting (BGPP 2007), Quebec City, September 2-6, 2007.

D. Grobnic, **S. Mihailov**, R.B. Walker and C.W. Smelser, "Strong Bragg Gratings made with IR Femtosecond Radiation in Heavily Doped  $\text{Er}_3^+$  and  $\text{Yb}_3^+$  Silica Fibers ", OSA Bragg Grating, Photosensitivity and Poling Topical Meeting (BGPP 2007), Quebec City, September 2-6, 2007.

D. Grobnic, **S. Mihailov**, R.B. Walker and C.W. Smelser, "Novel Amplitude FBG Sensor Made with fs-IR Radiation in SMF-28 Fiber for Multi-Parameter Bend Sensing", OSA Bragg Grating, Photosensitivity and Poling Topical Meeting (BGPP 2007), Quebec City, September 2-6, 2007.

C.W. Smelser, **S. Mihailov**, D. Grobnic, "Fourier components of Type I-IR ultrafast induced fiber Bragg gratings", OSA Bragg Grating, Photosensitivity and Poling Topical Meeting (BGPP 2007), Quebec City, September 2-6, 2007.

C.W. Smelser, **S. Mihailov**, D. Grobnic, "Growth behavior of Type I-IR ultrafast laser induced gratings in hydrogen loaded SMF-28 fiber", OSA Bragg Grating, Photosensitivity and Poling Topical Meeting (BGPP 2007), Quebec City, September 2-6, 2007.

**S. Mihailov**, "Ultrafast Laser Fabrication of Bragg Grating Devices," invited presentation for the Workshop on Ultrafast Lasers, as part of the IEEE International Symposium on Signals, Systems and Electronics (ISSSE 2007), Montreal, July 30, 2007.

X. Dai, **S. Mihailov**, R.B. Walker, C.L. Callender, C. Blanchetiere, "Temperature Insensitive Refractometer Using TE and TM modes in Open Top Ridge Waveguides," presented at Photonics North, Ottawa, ON, June 4-7, 2007, Proc. SPIE Volume 6796 paper 6796-56.

R.B. Walker, D. Grobnic, **S. Mihailov**, **P. Lu** and C.W. Smelser, "Dispersion characteristics of fiber Bragg gratings with Gaussian self apodisation made with a femtosecond laser in heavily doped Erbium and Ytterbium fibers", presented at Photonics North, Ottawa, ON, June 4-7, 2007. paper FLA-Poster-5-5.

D. Grobnic, **S. Mihailov** and C.W. Smelser, "Study of the fabrication process of bragg gratings in channel waveguides using ultrafast radiation and the phase mask method", presented at Photonics North, Ottawa, ON, June 4-7, 2007. paper PD-6-11-3.

D. Grobnic, **S. Mihailov**, C.W. Smelser, and H. Ding, “Study of the Sapphire Bragg gratings probed with multimode and single mode signal from fiber collimators and evanescent fiber tapers”, presented at Photonics North, Ottawa, ON, June 4-7, 2007. paper IND-4-2-2.

D. Grobnic, **S. Mihailov**, C.W. Smelser, and R. B. Walker, “Bragg gratings made with ultrafast radiation in non-silica glasses; fluoride, phosphate, borosilicate and chalcogenide Bragg gratings”, presented at Photonics North, Ottawa ON, June 4-7, 2007. paper IND-4-2-3.

D. Grobnic, **S. Mihailov** and C.W. Smelser, “Bragg gratings made with ultrafast radiation in crystal waveguides; lithium niobate, sapphire and YAG Bragg gratings”, presented at Photonics North, Ottawa ON, June 4-7, 2007. paper OSD-4-1-3.

D. Grobnic, **S. Mihailov**, C.W. Smelser, and R. B. Walker, “1.5 cm long single mode fiber laser made by femtosecond exposure of heavily doped erbium-ytterbium fiber”, presented at Photonics North, Ottawa, ON, June 4-7, 2007. paper FLA-6-3-2.

C.W. Smelser, **S. Mihailov**, D. Grobnic, “Fabrication of femtosecond laser induced Bragg gratings in amorphous and crystalline dielectric waveguides”, invited talk presented at Photonics North, Ottawa ON, June 4-7, 2007 paper GWD-4-3-1.

N.S. Lagali, D. Burns, D.L. Zimmerman and **R. Munger**, “Optical indicators of baseline blood status in dialysis patients”, Proceedings of the SPIE, Volume 6796, pp. 679602 (2007).

R. Millett, T. Hall, K. Hinzer, V. Tolstikhin, K. Pimenov, Y. Logvin, B. Robinson, Z. Peng, and **H. Schriemer**, “Monolithically Integrated InGaAsP/InP 1x2 SOA Optical Switch”, Proceedings of SPIE 6796: 67962Y-1 to -12, 2007.

O. Gessner, A.M.D. Lee, E.t-H. Chrysostom, C.C. Hayden and **A. Stolow**, “Femtosecond Multidimensional Imaging - Watching Chemistry from the Molecule's Point of View” in “*Springer Series in Chemical Physics, Vol.88, Ultrafast Phenomena XV*”, P. Corkum, D. Jonas, R.D.J. Miller, A.M. Weiner. Eds. (Springer Verlag, Berlin, 2007) p.365.

H. Satzger, D. Townsend, M.Z. Zgierski and **A. Stolow**, “Direct Observation of Ultrafast Dynamics in DNA Bases” in “*Springer Series in Chemical Physics, Vol.88, Ultrafast Phenomena XV*”, P. Corkum, D. Jonas, R.D.J. Miller, A.M. Weiner. Eds. (Springer Verlag, Berlin, 2007) p.486.

### Contributed Conference Presentations (Oral and Posters) in 2007

W. Li, C. Zhang and **X. Bao**, “High strain and temperature sensing using distributed Brillouin sensors with carbon coated fiber”. SHMII-3 for 2007.

Y. Li, **X. Bao**, L. Zou and F. Ravet, “The distributed Brillouin sensor system based on offset locking two DFB lasers”, presented at 6<sup>th</sup> Asia-Pacific Conference, Proc.Of SPIE, 6595, 65952T(1-6), 2007.

J. Snoddy, Y. Li, F. Ravet, **X. Bao**, “Stabilization of EOM bias voltage drift using lock-in amplifier and PID controller in distributed Brillouin sensor system”, SHMII-3 for 2007.

S. Yang, J. Cameron, J. Snoddy, L. Zou and **X. Bao**, “PRBS data delay in an all fiber slow light system based on SBS effect, NRZ vs. RZ”, OFC’2007. paper OWB6.

C. Zhang, **X. Bao**, I.F. Ozkan, M. Mohareb, F. Ravet, L. Zou, “Predict the Pipeline Buckling using the broadening factor of Brillouin spectrum width”, Photonics North 2007.

R. Pattathil, M. Gertsvolf, **R.V. Bhardwaj**, E. Simova, C. Hnatovsky, R. Taylor, D. Rayner and **P. Corkum**, “Memory in nonlinear ionization of transparent solids, CLEO-2007, Baltimore, USA.

**K. Chen** and L. Cheng, “Density functional theory study of elastic, thermal physical properties and electronic structures of Fe-Ga alloys”, in 2007 CF/DRDC International Defence Application of Materials Meeting, Halifax, Nova Scotia, Canada, June 5-7, 2007.

K.P. Boyle, **K. Chen** and R. Miller, “Microstructural Computations for Material Selection and Performance Evaluation for Gen IV Nuclear Reactor Components”, *Generation IV National Program - Materials R&D Workshop*, Ottawa, ON, April 24 2007.

V.P. Kalosha, **L. Chen** and **X. Bao**, “Controlling generation regimes of all-optical fibre passively mode-locked Yb laser”, Photonics North 2007.

V.P. Kalosha, **L. Chen** and **X. Bao**, “Slow Light of Gb/s Bit Streams via Stimulated Brillouin Scattering in Non-Uniform Optical Fibers” Slow and Fast Light (SL) 2007, Integrated Photonics and Nanophotonics Research and Applications (IPNRA), Salt Lake City, Utah, paper JTUA9.

V. P. Kalosha, **L. Chen**, and **X. Bao**, “Slow light of subnanosecond pulses via stimulated Brillouin scattering in non-uniform optical fibers”, International Conference on Coherent and Nonlinear Optics (ICONO 2007) Belarus 2007.

**J.E.Cyglar**, A. Saoudi, A. Cherpak, W. Ding, R. Ashton, “4D In-Vivo Dosimetry in Radiotherapy”, 49<sup>th</sup> AAPM Annual meeting, July 22-26, 2007, Minneapolis, USA.

A. Viamonte Marin, L-A. R. da Rosa, A. Cherpak, L.Buckley, **J.E. Cyglar**, “Dosimetry measurements in radiotherapy beams using a commercial OSL system”, 9th Biennial ESTRO Meeting on Physics and Radiation Technology for Clinical Radiotherapy, 8-13 September 2007, Barcelona, Spain.

A. Cherpak, L.Buckley, W. Ding, R.Ashton, **J.E. Cyglar**, “4D in-vivo dosimetry in radiotherapy”, CARO/COMP Joint Annual Scientific Meeting, 10-13 October 2007, Toronto, Canada.

A. J Cherpak, R.C.N. Studinski, **J.E. Cyglar**, “MOSFET detectors in quality assurance of tomotherapy treatments”, CARO/COMP Joint Annual Scientific Meeting, 10-13 October 2007, Toronto, Canada.

AV Marin, LR da Rosa, LA Buckley, A Cherpak and **J.E. Cygler**, “Evaluation of a commercial OSL dosimetry system for in-vivo measurements”, CARO/COMP Joint Annual Scientific Meeting, 10-13 October 2007, Toronto, Canada.

C Angers, **J.E. Cygler**, “Beam Characterization of the Equinox Cobalt-60 Treatment Unit”, AAPM 9<sup>th</sup> Annual Meeting, July 22- 27, 2007, Minneapolis, MN.

A Viamonte Marin, L Ribeiro da Rosa, L Buckley, A Cherpak, **J.E. Cygler**, “Evaluation of a Commercial OSL System for Dosimetry Measurements in Radiotherapy Beams”, AAPM 49<sup>th</sup> Annual Meeting, July 22- 27, 2007, Minneapolis, MN.

**J.E. Cygler**, “Clinical implementation of Monte Carlo methods for external electron therapy”, 9<sup>th</sup> Biennial ESTRO Meeting on Physics and Radiation Technology for Clinical Radiotherapy, 8-13 September 2007, Barcelona, Spain.

**J.E. Cygler**, “In vivo dosimetry in brachytherapy”, 9<sup>th</sup> Biennial ESTRO Meeting on Physics and Radiation Technology for Clinical Radiotherapy, 8-13 September 2007, Radiotherapy and Oncology, Barcelona, Spain.

**J.E. Cygler**, MA.Viamonte, LAR.da Rosa, LA.Buckley, A.Cherpak, “Dosimetry measurements in radiotherapy beams using a commercial OSL system”, 9<sup>th</sup> Biennial ESTRO Meeting on Physics and Radiation Technology for Clinical Radiotherapy, 8-13 September 2007, Radiotherapy and Oncology, Barcelona, Spain.

B.-M. Saumur, K. Hattori, S. Guillot, and **S. Desgreniers**, “Protrusion of forearc mantle serpentinites along major strike-slip faults in an oceanic complex in Dominican Republic”, Serpentine Workshop, Grenoble, France (September 2007). Poster.

N. Yastrebova, K. Hinzer, D. Masson, **S. Desgreniers**, **H. Schriemer**, B.J. Riel, **S. Fafard** and T.J. Hall, “III-V on Ge multijunction solar cells as an energy source for wireless networks”, SPIE Optics & Photonics, Solar energy & Applications, San Diego, CA, 26-30 August 2007.

J. S. Smith, **S. Desgreniers**, **J. S. Tse**, D. D. Klug, and R. Flacau, “The high-pressure structure and lattice dynamics of the heavy alkaline earth hydrides”, IUCr HP Workshop 2007. Oxford, UK Sept. 2007. Invited poster.

J. S. Smith, **S. Desgreniers**, **J. S. Tse**, and D. D. Klug. “Powder x-ray diffraction at HXMA: commissioning and research results”, CLS AUM 2007. June 2007 First Prize Student Poster.

R. Flacau. **S. Desgreniers**, and **J. S. Tse**, “Mapping Electron Density Distributions: Rietveld/Maximum Entropy. Analysis of Powder X-ray Diffraction Patterns of Dense Gas Hydrates”, Poster at the CLS AUM 2007. June 2007.

**P. Finnie**, “The IMS Nanotube Project”, 2007 Nanoelectronics Regional Meeting, March 23, 2007, Ottawa.

**P. Finnie**, J. Lefebvre, D. Guy Austing, J. Lefebvre, “Global Raman Imaging for in situ Monitoring of

SWNT and MWNT Chemical Vapor Deposition”, NASA-Rice Nucleation and Growth Workshop III, Canyon of the Eagles Lodge, Texas, April 16, 2007 (Poster).

L. Kulyuk and **E. Fortin**, “Temperature dependence of the radiative lifetime in 2H-WS<sub>2</sub> and 2H-MoS<sub>2</sub> crystals”, Ukrainian Semiconductor Conference, Odessa (2007).

**J. Harden**, “Self-assembling, bioactive protein hydrogels via engineered coiled-coil aggregation”, Annual meeting of the American Physical Society, Denver, CO, March 6, 2007.

**J. Harden**, “Microscopic dynamics of recovery in sheared glassy depletion gel”, Annual meeting of the Canadian Association of Physicists, Saskatoon, SK, June 18, 2007

**J. Harden**, “Self-assembling, bioactive protein hydrogels via engineered coiled-coil aggregation”, Annual meeting of the Canadian Association of Physicists, Saskatoon, SK, June 20, 2007

M.E. Reimer, M. Korkusinski, J. Lefebvre, J. Lapointe, P. Poole, G. Aers, D. Dalacu, W.R. McKinnon, S. Frederick, **P. Hawrylak**, **R.L. Williams**, “Gated InAs/InP individual and coupled quantum dots on patterned substrates”, NanoForum Canada 2007, University of Waterloo, Ontario, June 18-20, 2007.

M.E. Reimer, M. Korkusinski, J. Lefebvre, J. Lapointe, P. Poole, G. Aers, D. Dalacu, W.R. McKinnon, S. Frederick, **P. Hawrylak**, **R.L. Williams**, “Engineering hidden symmetry within gated quantum dots - a scalable route to entangled photon pairs”, MSS-13, Genova, Italy, July 15 - 20, 2007.

B.W. King and **P.C. Johns**, “A sub-matrix method for extracting x-ray coherent scattering form factors from image plate data”, Paper # 26 at SPIE Conference 6510, Physics of Medical Imaging, San Diego, California (19 Feb 2007).

B.W. King and **P.C. Johns**, “An Energy Dispersive Technique for Measuring X-Ray Coherent Scattering Form Factors”, Poster # 264 at joint conference of the Canadian Association of Radiation Oncologists and the Canadian Organization of Medical Physicists, Toronto (12 Oct 2007). [Abstract: Radiotherapy and Oncology 84(2), Suppl. 2, S75-S76 (2007)].

B.W. King and **P.C. Johns**, “Laboratory Experience with a Mechanically Cooled High Purity Germanium X-Ray Detector”, Poster # 194 at joint conference of the Canadian Association of Radiation Oncologists and the Canadian Organization of Medical Physicists, Toronto (12 Oct 2007). [Abstract: Radiotherapy and Oncology 84(2), Suppl. 2, S56 (2007)].

P.-A. Boucher, **B. Joós** and C.E. Morris, “Rupture kinetics of lipid bilayers with mechanosensitive two-state spandex proteins”, Biophysical Society, 51st Annual Meeting, March 3-7, 2007, Baltimore, Maryland, (Biophysical J. supplement, Jan. 2007, Pos-515).

J.-F. Joly and **B. Joós**, “A phase field model applied to vesicle flow under a pressure gradient in a constrained environment: application to vesicle extrusion”, Biophysical Society, 51st Annual Meeting, March 3-7, 2007, Baltimore, Maryland, (Biophysical J. supplement, Jan. 2007, Pos-712).

P. Jourabchi, **I. L'Heureux** and P. Van Cappellen, "Steady state compaction in deep-sea sediments: Calcite dissolution vs. compression", ASLO meeting, Santa Fe NM, Feb. 4-9 2007 (poster).

**I. L'Heureux**, "Elimination of the intermediate colloidal product in models of periodic precipitation pattern", Annual Congress of the Canadian Association of Physicists, Saskatoon. (SK), June 17-20, 2007.

**I. L'Heureux**, "A new model of volatile growth in magmatic systems". Annual Congress of the Geological Association of Canada/Mineralogical Association of Canada, Yellowknife (NWT), May 23-25, 2007.

J.M. Mogollón, **I. L'Heureux**, A. Dale, D. Aguilera, P. Regnier, "Methane generation, transport, and consumption in marine sediments", ASLO meeting, Santa Fe NM, Feb. 4-9 2007 (poster).

**H. Logan**, "Theory uncertainties in ILC Higgs measurements", contributed parallel talk, Brookhaven Forum 2007: New Horizons at Colliders, Brookhaven National Laboratory, May 2007.

**P. Lu, S. J. Mihailov, L. Chen and X. Bao**, "The statistics of PMD for an optical pulse and its relationship to pulse broadening", Photonics North 2007.

**M.R. McEwen** and C.K. Ross, "Direct calibration of ion chambers in linac electron beams", Workshop on Absorbed Dose and Air Kerma Primary Standards, LNE-LNHB, Paris (oral).

**M.R. McEwen**, "Evaluation of the Exradin A19 ion chamber for reference dosimetry in megavoltage photon beams", American Association of Physicists in Medicine 49th Annual Meeting (poster).

**M.R. McEwen**, A. McDonald, B.A. Faddegon, "Comparison of detectors for electron depth-dose measurements and investigation of parallel-plate chamber perturbation factors", American Association of Physicists in Medicine 49th Annual Meeting (poster).

A. McDonald, **M.R. McEwen**, B.A. Faddegon and C.K. Ross, "High precision data set for benchmarking of electron beam Monte Carlo", American Association of Physicists in Medicine 49th Annual Meeting (poster).

C.K. Ross, **M.R. McEwen** and N.V. Klasse, "Vessel Designs and Correction Factors for Water Calorimetry", Workshop on Absorbed Dose and Air Kerma Primary Standards, LNE-LNHB, Paris (oral).

C. Clark and **R. Munger**, "Novel technique for the measuring of wavefront aberrations of excised crystalline lenses", Photonics North 2007.

N.S. Lagali, K.D. Burns, D.L. Zimmerman and **R. Munger**, "Optical Spectroscopy: A New Tool For Assessing Blood Status In End-Stage Renal Disease", Canadian Society of Nephrology, Annual Meeting 2007.

N.S. Lagali, D. Burns, D.L. Zimmerman and **R. Munger**, “Optical indicators of baseline blood status in dialysis patients”, Photonics North 2007.

M. Naji, A. Khetani, N.S. Lagali, **R. Munger** and H. Anis, “A novel method of using hollow-core photonic crystal fiber as a Raman biosensor”. Photonics West 2007.

**P. Piercy**, “Microscopic surface deformation due to low energy ion bombardment on Si(111)”, Physical Electronics Conference, June 2007, Urbana, IL.

**C. Py**, D. Poitras, C.C. Kuo, E. Estwick, H. Fukutani and X. Tong, “High-contrast Organic Light Emitting Diodes For Portable Displays”, 13<sup>th</sup> Canadian Semiconductor Technology Conference, Montreal Canada, Aug. 14-17, 2007.

M. G., **C. Py**, M. Bani, R. Monette, T. Ahuja, J.G. Mielke, M. Denhoff, T. Comas, R. Tremblay and A. Krantis A. “A novel patch-on-chip interface with cultured brain neurons”, 4<sup>th</sup> Annual Ion Channel Retreat, Vancouver, BC, June 25-27, 2007.

**L. Ramunno**, C. Jungreuthmayer, H. Reinholz and **T. Brabec**, “Probing attosecond kinetic physics in strongly coupled plasmas”, Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science (2007).

**S. Raymond**, M. Vachon, J. Lapointe, A. Babinski and M. Potemski, “Fock-Darwin Spectrum of a Single Quantum Dot in High Magnetic Field”, 7<sup>th</sup> International Conference on Physics of Light-Matter Coupling in Nanostructures PLMCN7, Havana, Cuba, April 12-17 2007.

**S. Raymond**, P. J. Poole, P. J. Barrios, G. Pakulski, Z. G. Lu and J. R. Liu, “InAs/InP Quantum Dot Lasers emitting at 1.55  $\mu\text{m}$  and applications”, The Thirteenth Canadian Semiconductor Technology Conference CSTC 2007, Montréal, Québec, Canada, August 14-17 2007.

P.J. Poole, **S. Raymond**, P.J. Barrios, Z.G. Lu, J. Liu, D. Poitras, P. Verly, “Long Wavelength InP-Based Quantum Dot Lasers: Growth and Characterisation”, Long Wavelength Quantum Dots: Growth and Applications LWQD2007, Rennes, France. 5-6 July 2007.

P.J. Poole, **S. Raymond**, P.J. Barrios, Z.G. Lu, J. Liu, D. Poitras, “Long Wavelength InP based QD lasers”, International Workshop on Quantum Dots and Laser Applications IWQDLA2007, Wroclaw, Poland. 12-14 July 2007.

A. Babinski, M. Potemski, **S. Raymond**, M.Korkusinski, **P.Hawrylak**, and Z. Wasilewski, “Multiexcitonic emission from a single quantum dot in magnetic field”, oral presentation at the International Conference on Electronic Properties of Two-dimensional Systems and Modulated Semiconductor Structures, Genova, Italy, July 15-20 2007.

A. Babinski, M. Potemski, **S. Raymond** and Z. Wasilewski, “Charged and neutral excitons in natural quantum dots in the InAs/GaAs Wetting Layer”, oral presentation at the International Conference on Electronic Properties of Two-dimensional Systems and Modulated Semiconductor Structures, Genova, Italy, July 15-20 2007.

Z.G. Lu, J.R. Liu, **S. Raymond**, P.J. Poole, P.J. Barrios, S. Haffouz, D. Poitras, G. Pakulski, S. Taebi, Y. Song, X.P. Zhang, and T. Hall, “Quantum-dot semiconductor waveguide devices”, Asia-Pacific Optical Communications 2007, Wuhan, P.R. China (1-5 November 2007).

Z.G. Lu, J.R. Liu, **S. Raymond**, P.J. Poole, P.J. Barrios, S. Haffouz, G. Pakulski, D. Poitras, G.Z. Xiao, Z.Y. Zhang, S. Taebi, Y. Song, X.P. Zhang, and T. Hall, “Self-assembled quantum-dot semiconductor optical devices”, The Photonics North 2007, Ottawa, ON, Canada, 95-m12Q-151 (4-7 June 2007).

Z.G. Lu, J.R. Liu, **S. Raymond**, P.J. Poole, P.J. Barrios, G. Pakulski, D. Poitras, F.G. Sun, S. Taebi, and T.J. Hall, “Ultra-broadband quantum-dot semiconductor optical amplifier and its applications”, The 2007 Optical Fiber Communication Conference (OFC’2007), Anaheim, California, USA, JThA33, (25-29 March 2007).

M. Vachon, **S. Raymond**, A. Babinski, J. Lapointe, Z. Wasilewski, M. Potemski, M. Korkusinski and **P. Hawrylak**, “Energy Shell Structure of InAs/GaAs Quantum Dots as Revealed by Ultra-High Magnetic Fields: from Ensemble to Single Dot”, poster presentation at the 2007 international workshop on Optical properties of low-dimensional systems (OPLDS 2007), Ottawa, Canada May 30<sup>th</sup> – June 2<sup>nd</sup> 2007.

E.S.M. Ali and **D.W.O. Rogers**, “Off-focal radiation in x-ray tubes: An EGSnrc/BEAMnrc investigation”, Radiother. & Oncol. 84, S33 -- S34(abstract) (2007).

D.J. La Russa, M. McEwen, and **D.W.O. Rogers**, “An EGSnrc investigation of air kerma calibration coefficients for low-energy x-rays”, Radiother. & Oncol. 84, S54 -- S55(abstract) (2007).

D.J. La Russa, M. McEwen, and **D.W.O. Rogers**, “Experimental verification of the breakdown of the standard temperature-pressure correction factor for ion chambers in kilovoltage x-rays”, Radiother. & Oncol. 84, S55(abstract) (2007).

L.L.W. Wang and **D. W.O. Rogers**, “Monte Carlo calculation of replacement correction factors for plane-parallel chambers”, Radiother. & Oncol. 84, S55(abstract) (2007).

E.S.M. Ali and **D.W.O. Rogers**, “More efficient simulation of bremsstrahlung targets in EGSnrc user-codes”, Abstract book of Third McGill International Workshop on Monte Carlo Techniques in Radiotherapy Delivery and Verification , p18(abstract)(2007).

R.E.P. Taylor and **D.W.O. Rogers**, “Generating a consistent TG-43 Dosimetry Parameter Database using the EGSnrc user-code BrachyDose”, Abstract book of Third McGill International Workshop on Monte Carlo Techniques in Radiotherapy Delivery and Verification , p44(abstract) (2007).

**G.W. Slater** and M. Bertrand, “Electrophoresis of DNA molecules in virtual nanochannels”, oral presentation at the 2007 American Institute of Chemical Engineering (AIChE) Annual Meeting, Salt Lake City, Nov. 7 2007.

O. A. Hickey and **G. W. Slater**, “Molecular Dynamics Simulation of Dynamic Coatings for Quenching Electroosmotic Flow”, Oral presentation at the 2007 American Institute of Chemical Engineering (AIChE) Annual Meeting, Salt Lake City, Nov 7.

M. Gauthier and **G.W. Slater**, “Is the non-driven translocation of polymer through a small channel a quasi-equilibrium process?” Poster presentation at the International Soft Matter Conference 2007, Aachen, Germany.

M. Gauthier and **G.W. Slater**, “Polymer moving through a small channel: A new Monte Carlo approach to study binding effects and chaperones”. Poster presentation at the 2007 March Meeting of the American Physical Society, Denver.

Owen Hickey and **G.W. Slater**, “Surprising non-monotonic dependence of a polymer’s diffusion coefficient on the degree of disorder of the medium”. Poster presentation at the 2007 March Meeting of the American Physical Society, Denver.

C. Kingsburry and **G.W. Slater**, “Effective molecular diffusion coefficient in a two-phase gel medium”. Poster presentation at the 2007 March Meeting of the American Physical Society, Denver.

**G. W. Slater** and M. Bertrand, “Tethered DNA molecules stretched by an electric field: A Molecular Dynamics Study”. Oral presentation at the 2007 March Meeting of the American Physical Society, Denver.

**G. W. Slater**, S. Nedelcu and L. C. McCormick, “Theoretical investigation of high-field end-labeled free-solution electrophoresis (ELFSE) and sequencing of ssDNA”, Poster presentation at the 2007 MSB (Microscale Bioanalysis) Conference, Vancouver, January 16.

T. Xu, R deKemp, **R. Wassenaar**, M Chamberland, “Preliminary Experimental Study for Tumor Position Tracking During Radiotherapy Using Positron Emission Markers”, AAPM 49th Annual Meeting, July 22-26, 2007.

**J.S. Tse**, H. Sternemann, C. Sternemann, A. Schacht, M.Tolan, **S. Desgreniers**, Y.Q. Cai, N. Hiraoka, G. Vankó J.A. Soininen, “Study of the Ba giant dipole resonance in Ba<sub>8</sub>Si<sub>46</sub> at ambient and high pressure with non resonant inelastic x-ray scattering”. Poster at the CLS AUM 2007.

H. Sternemann, C. Sternemann, **J.S. Tse**, J.A. Soininen, Y.Q. Cai, **S. Desgreniers**, T.T. Fister, N. Hiraoka, A. Hoh, A. Schacht, G.T. Seidler, G. Vank’o, K. Hamalainen, and M. Tolan, “ Non-resonant inelastic x-ray scattering studies of Si based compounds”, Presented at the IXS2007 Conference.

**J.S. Tse**, Y. Yao, D.D. Klug Y. LePage, and **S. Desgreniers**. “Structure and Bonding in the High Pressure Phases of Oxygen”, AIRAPT 21, Catania, Sicily, September 2007 (Poster).

**J. S. Tse**, R. Flacau, and **S. Desgreniers**, “Mapping Electron Density Distributions: Rietveld/Maximum Entropy Analysis of XRD Patterns of Dense  $Ba_8Si_{46}$  ”, IUCr HP Workshop 2007. Oxford, UK Sept. 2007 (Poster).

**R. Wassenaar**, M. Lalonde, B. Dej, B. Marvin, R. deKemp, D. Birnie, T. Ruddy, “Quantifying LV dyssynchrony using radionuclide angiography phase analysis parameters”, JNM, 2007;48(Supp 2):195P.

R Klein, M. Bentourkia, A. Adler, J. DaSilva, **R. Wassenaar**, R. S. Beanlands and R. A. deKemp, “Anatomical accuracy & variability in factor analysis of dynamic structures (FADS) with cardiac 18FDG PET imaging”, JNM, 2007;48(Supp 2):408P.

**R. Wassenaar**, S Thakrar, A Thibeau, “What’s the Best Choice for Syringe Shielding for Zevalin Therapy?”, 2007 CSNM Annual Meeting, March 2007.

W Zeng, **R. Wassenaar**, “Which Patient Group will Benefit Most From Additional Forearm BMD Measurement?”, J Clin Densit, 2007;10(2):S209.

**R.G. Wells**, “Anatomical Priors to Improve Image Quality in Small-Animal SPECT”, 2007 IEEE Nuclear Science Symposium Conference Record, 4319 - 4323, 2007. Poster Presentation at the 2007 IEEE Medical Imaging Conference.

M. Shkvorets, R.A. deKemp, and **R.G. Wells**, “Respiratory-motion Errors in Quantitative Myocardial Perfusion with PET/CT”. 2007 IEEE Nuclear Science Symposium Conference Record, 3946 - 3950, 2007. Poster Presentation at the 2007 IEEE Medical Imaging Conference.

K.J. Blackwood, Y. Jin, H. Kong, **R.G. Wells**, J. Sykes, R.Z. Stodilka, and F.S. Prato, “Tracking bone marrow cell survival in canine myocardium with SPECT”. 6th Annual Imaging Symposium, 21, Poster presentation at the Imaging Networks of Ontario Symposium, Mar 28-29, 2007.

J. Tai, B. Nguyen, **R.G. Wells**, M. Kovacs, R. McGirr, F.S. Prato, T. Morgan, and S. Dhanvantari, “In Vivo imaging of gene expression in pancreatic beta-cell grafts using dual-isotope SPECT”, 2007 Joint Molecular Imaging Conference. Oral Presentation by Joo-Ho Tai.

H. Boulay, D. Wilkinson, L. Prud'homme-Lalonde, S. Lachapelle, S. Qutob, **R. Wilkins**, D. Boreham and D. Morrison, “The National Biological Dosimetry Response Plan: Developing Canadian Biodosimetry Capabilities”, 17th Nuclear Medical Defence Conference, Munich, Germany. (poster)

**R.C. Wilkins**, C.L. Ferrarotto, B. Kutzner, S. Qutob, J. McNamee, D. Buchanan, Y. Devantier, D. Morrison, D. Boreham, J. Lemon, J.-A. Dolling, S. LaChapelle, L. Prud'homme-Lalonde and D. Wilkinson, “Biological Dosimetry and Markers of Nuclear and Radiological Exposures”, CRTI Summer Symposium, Ottawa, ON.

Y. Chen, O. Hyrien, I. Nowak, Y. Tsai, N. Wang, **R. Wilkins**, C. Ferrarotto and S. Dertinger, “Validation of high throughput micronucleus analysis in peripheral reticulocytes for radiation biodosimetry”, 13th International Congress of Radiation Research, San Francisco, CA. (poster)

Y. Tsai, C. Ferrarotto, N. Wang, **R. Wilkins** and Y. Chen, “Optimizing cytogenetic analysis for radiation induced chromosomal aberration in C57Bl/6 mice”. 13th International Congress of Radiation Research, San Francisco, CA. (poster)

**R. Wilkins**, B.C. Kutzner, C. Ferrarotto, S. Dertinger and J.P. McNamee, “Development of a high-throughput assay for radiation biological dosimetry”. 15th Annual Meeting of the Great Lakes International Imaging and Flow Cytometry Association, Windsor, ON. (poster)

D. Dalacu, S. Frederick, D. Kim, J. Lapointe, P.J. Poole, G. Aers, **R.L. Williams**, “Coupling Site-selected InAs/InP Quantum Dots to 2D Photonic Crystal Microcavities”, EP2DS-17, Genova, Italy, July 15 - 20, 2007.

J. Lapointe, D. Dalacu, S. Frederick, D. Kim, J. Lefebvre, W.R. McKinnon, P.J. Poole, M.E. Reimer, G.C. Aers, **R.L. Williams**, “Fabrication of quantum dots-based optical devices using a site-selective regrowth technique”, CSTC 2007, Montreal, August 14-17, 2007.

C.L.C. Smith, S. Frederick, C. Grillet, C. Monat, D. Dalacu, J. Lapointe, P.J. Poole, G.C. Aers, **R.L. Williams**, D.J. Moss, and B.J. Eggleton, “Tuning of photonic crystal nanocavity resonances”, COIN ACOFT 2007 International Conference on Optical Internet held jointly with the 32nd Australian Conference on Optical Fibre Technology, 2007: p. 373-5.

J.F. Young, M.W. McCutcheon, G.W. Reiger, D. Dalacu, S. Frederick, P.J. Poole, **R.L. Williams**, “Second harmonic and sum frequency generation in sub-micron 3D photonic crystal microcavities”, LEOS 2007, Lake Buena Vista, Florida, October 21-25, 2007.

**C.J. Willott**, “The WIRCam Deep Survey (The Evolution of Massive Galaxies)”, SkiLS Meeting Feb 2007.

**C. J. Willott**, “The Canada-France High-z Quasar Survey”, CASCA07, Kingston, June 2007.

## Colloquiums and Seminars in 2007

**X. Bao**, “Brillouin scattering in fibers and applications”, May 1, Department of Physics and Physical Oceanography, Memorial University of Newfoundland.

**X. Bao**, “Distributed Brillouin sensor and applications”, Nov. 28, Ecole polytechnique de Montréal,

**A. Bellerive**, “Neutrino, Collider and Dark Matter”, seminar to scientific journalists, Ottawa, November 22, 2007.

- T. Brabec**, “Quantum few-body dynamics in intense fields,” PPPL Princeton University, 2007.
- I.G. Cameron**, “Dealing with Rician Noise Bias in Quantitative MRI”, University of Montreal, March 2007.
- P. Corkum**, “Mapping Attosecond Science onto Electron Interferometry”, Texas A and M University, College Station, TX. January 25, Physics Colloquium.
- P. Corkum**, “Attosecond Electron Interferometry”, University of California at Berkley, Berkely, CA, Feb 5-6, Physical Chemistry Seminar.
- P. Corkum**, “Attosecond Science”, McGill University, Montreal Quebec. Feb 9 Physics Colloquium.
- P.Corkum**, “Using Attosecond Technology to Image Molecular Orbitals”, Queens University, Kingston Ontario Feb 13 Physics Colloquium.
- P. Corkum**, “Using Attosecond Technology to Image Molecular Orbitals”, Brown University, Providence RI, April 4, Clapp Lecture .
- P. Corkum**, “Attosecond Science and Transient Grating Spectroscopy”, Brown University, Providence RI, April 6, Chemistry Colloquium.
- P. Corkum**, “Laser Induced Molecular Imaging”, Imperial College, London, UK, Sept 6, Physics Colloquium.
- P. Corkum**, “Attosecond Science and Technology”, Rutherford Appleton Laboratory, Didcot, U.K. Sept 7, Physics Colloquium.
- P. Corkum**, “Attosecond Science”, University of Nebraska, Lincoln, NE, Physics Colloquium.
- P. Corkum**, “Attosecond Science and Technology”, Ecole Polytechnique, Montréal, November 29 Engineering colloquium.
- P. Corkum**, , “Attosecond Science and Technology”, University of Michigan, Ann Arbor, MI, Nov 6, NSF Focus Lecture.
- J.E. Cygler**, “Latest advances in in vivo dosimetry”, Radiation Oncology , Physics Rounds, May 30, 2007, Ottawa.
- J.E. Cygler**, “Radiotherapy for brain cancer”, Ottawa Brain Cancer Support Group, May 29, 2007.
- J.E. Cygler**, “3D image guided cervix brachytherapy – report from visit to AKH, Vienna”, Radiation Oncology , Physics Rounds, 21 November 2007.
- M. Dixit**, “TPC Development for the International Linear Collider”, seminar given at TRIUMF, Vancouver, July 2007.

**P. Finnie**, K. Kaminska, D. G. Austing, J. Lefebvre, “Deposition and Optical Imaging of Freely Suspended SWNTs”, Nov. 19, 2007, Tokyo University of Science, Tokyo, Japan

**S. Godfrey**, “The TeraScale Frontier: The Hunt for New Physics at the LHC”, Department of Physics, University of New Brunswick Fredericton, , September 28, 2007.

**S. Godfrey**, “The TeraScale Frontier: The Hunt for New Physics at the LHC”, Physics Department, University of Ottawa, (CAP Lecture, March 15, 2007).

**J. Harden**, “Dynamical evolution of recovery in concentrated gels and nanoemulsions”, Physics Department University of Fribourg, Switzerland, June 5, 2007.

**P. Hawrylak**, LPA Ecole Normale Supérieure, Paris, France (March 2007).

**P. Hawrylak**, National Nanotechnology Laboratory, Lecce, Italy (July 2007).

**P. Hawrylak**, Universitat Hamburg, Hamburg, Germany (2007).

**B. Joós**, “Microstructure of a soft glass”, Computational Science and Engineering Colloquium, October 30<sup>th</sup>, 2007, Queens University.

**H. Logan**, “Higgs physics at the LHC”, York University, February 2007.

**H. Logan**, “Testing the Higgs mechanism”, McGill University, March 2007.

**R. Munger**, “Light as a practical non-invasive health assessment tool in medicine”, NRC Leos Speaker

**G. Oakham**, “The ATLAS Experiment”, St Francis Xavier University, November 2007.

**G. Oakham**, “The ATLAS experiment”, Dalhousie University, November 2007.

**G. Oakham**, “The ATLAS experiment”, OCIP Xmas symposium, December 2007.

**C. Py**, “Hybrid microfabrication: application to OLEDs and Neurochips”, University of Ottawa, Department of Physics colloquium (Nov. 15, 2007).

**L. Ramunno**, “Microscopic simulation of intense laser interaction with condensed matter?”, Femto Group Seminar, Steacie Institute for Molecular Sciences, National Research Council (2007).

**L. Ramunno**, “Simulating intense laser interaction with materials: current progress and future directions?”, Advanced Laser Light Source Annual Meeting (2007).

**L. Ramunno**, “Virtually blowing stuff up: Applications of computational many-body dynamics to intense laser-matter interaction?”, Computational Science Seminar Series, Queen’s University (2007).

**A. Stolow**, “Ultrafast Molecular Sciences: from Quantum Dynamics to Biophotonics”, Ottawa-Carleton Institute of Physics University of Ottawa 12 December 2007.

**A. Stolow**, “Ultrafast Molecular Physics in Laser Fields”, Institute of Optics & Department of Physics Peking University Beijing, China 26 September, 2007.

**A. Stolow**, “Polyatomic Molecules in Laser Fields”, Department of Physics Imperial College London UK 6 August 2007.

**A. Stolow**, “Polyatomic Molecules in Laser Fields”, Department of Physics University College London London UK 1 August 2007.

**A. Stolow**, “Femtosecond Molecular Sciences: from Non-linear Optics to Biophotonics”, Seminar, Department of Chemistry University of Ottawa Ottawa, ON 7 May, 2007.

**A. Stolow**, “Watching and Controlling Chemical Reactions”, Colloquium, Department of Chemistry University of Sherbrooke Sherbrooke, QC 7 February, 2007.

**A. Stolow**, “Non-adiabatic Molecular Dynamics and its Quantum Control”, Colloquium, Argonne National Laboratory Argonne, IL USA 15 January, 2007.

**D.M. Villeneuve**, University of Ottawa, Physics Department Colloquium, 15 February 2007.

**D.M. Villeneuve**, Temple University, Chemistry and Physics Department joint colloquium, Philadelphia PA, 23 April 2007.

**D.M. Villeneuve**, German Physical Society summer school, Bonn, Germany, 20-25 May 2007.

**D.M. Villeneuve**, Argonne National Laboratory, Chemistry Division, Chicago, 12 November 2007.

**D.M. Villeneuve**, Kansas State University, 14 November 2007, Departmental seminar.

**D.M. Villeneuve**, Kansas State University, 15 November 2007, AMO group seminar.

**G. Wells**, “Correcting for Breathing in Cardiac PET/CT”. Presented to the Ottawa Medical Physics Institute in Ottawa, ON, Canada, on Jan 25, 2007.

**G. Wells**, “Using CT in Nuclear Medicine Imaging”. Presented to the Département de médecine nucléaire et de radiobiologie à l'Université de Sherbrooke, Sherbrooke, QC, on March 22, 2007.

**C. Willott**, Physics colloquium, University of Ottawa, March 07.

**C. Willott**, Physics colloquium, Queens’s University, March 07.

**C. Willott**, Physics colloquium, McGill University, April 07.

**C. Willott**, Herzberg Institute of Astrophysics, Nov. 07.

**T. Xu**, “Radiation therapy and intervention with the aid of positron emission based real-time tracking”, City Wide Nuclear Medicine Imaging Rounds at The Ottawa Hospital, February 21, 2007.

## Technical Reports in 2007

Barnett, R., **J.E. Cygler**, “CAPCA Quality Control Standards: Brachytherapy Remote Afterloaders”, COMP web page, <http://www.medphys.ca/article.asp?id=165> .

P. Dvorak and **L.H. Gerig**, “International Standardization of Radiation Devices”. COMP Interactions Newsletter, Volume 53, Number 3, July 2007.

**ILC Collaboration, Carleton Members:** M.S. Dixit, A. Bellerive, N. Shiell, E. Hill

**ILC Collaboration:** (G. Aarons et al.), “International Linear Collider, Reference Design Report”, Vol 4 Detectors, Editors: T. Behnke, C. Damerell, J. Jaros, A. Myamoto, August 2007.

**R. Munger:** “Software ACAP: Advanced wavefront based refractive surgery planning tool for VISX Inc.”, (May 2007)

**H. Schriemer**, “Addressing the spectre of possible harm: Proportionate regulatory response to nanotechnology exploitation”, 4 pages, Nanotechnology: Public Call for Evidence, Council of Canadian Academies, November 2007.

**H. Schriemer**, “Extracting local properties by scanning probe spectroscopy”, White paper, 4 pages, Semiconductor Research Corporation, Durham, NC, May 2007.

**G. Slater**, L. C. McCormick. “Electroosmotic flow for end-labelled free solution electrophoresis”, US patent application 60/782,272. Filed 15 March 2007. This patent describes an EOF approach that can improve the performance of ELFSE.

**G. Slater** and S. Nedelcu, “Branched polymer labels as drag-tags in free-solution electrophoresis”, US patent application 60/783,034. Filed 19 March 2007. This patent describes a new class of labels for ELFSE.

F. Torres, M. Gauthier, J.-F. Mercier and **G. Slater**, “Diffusion of small particles in a network of square cavities: Exact numerical results”. Physics in Canada 63, 138–140, 2007 (non-refereed).

## Graduating Students and Thesis in 2007

Student	Degree	Supervisor(s)	Defence Date
Andrei Andrievski <b>Thesis Title:</b> Characterizing of gammaH2AX response of human lymphocytes to ionizing radiation	M.Sc.	R. Wilkins	January 2007
Christopher Smelser <b>Thesis Title:</b> Ultrafast Infrared Laser Fabrication of Fibre Bragg Gratings with a Phase Mask	Ph.D.	Mihailov	January 2007
Sébastien Casault <b>Thesis Title:</b> Exact Enumeration Approach to Solving Transient Diffusion Problems Applied to Drug Delivery	M.Sc.	Slater	March 2007
Martin Kenward <b>Thesis Title:</b> On the Simulation and Theory of Polymer Dynamics in Sieving Media: Friction, Molecular Pulleys, Brownian Ratchets and Polymer Scission	Ph.D.	Slater	March 2007
Chris McDonald <b>Thesis Title:</b> Quantum dynamics of multi-electrons systems in strong laser fields	M.Sc.	Brabec	April 2007
Sunida Awirothananon <b>Thesis Title:</b> The Electronic Structure of InAs/GaAs Self-assembled Quantum Dots in a High Magnetic Field	Ph.D.	Raymond	April 2007
Martin Bertrand <b>Thesis Title:</b> Études de polyélectrolytes en solution libre par Dynamique Moléculaire	M.Sc.	Slater	May 2007
Jeffery Bond <b>Thesis Title:</b> The Optimization of Carbon Nanotube Growth Parameters for Photonics	M.Sc.	Finnie	May 2007
E. Ghasroddashti <b>Thesis Title:</b> Assessment of surrogates for lung tumor motion	Ph.D.	L. Gerig	June 2007
Roxanna Flacau <b>Thesis Title:</b> Structural and Electron Density Changes in Dense Guest-Host Systems: Analysis of X-ray Diffraction Data by the Rietveld and Maximum Entropy Methods	Ph.D.	Desgreniers/Tse	July 2007
Amanda Cherpak <b>Thesis Title:</b> In-vivo dosimetry in high dose gradient radiation fields	M.Sc.	J.E. Cygler	August 2007
Fabien Ravet <b>Thesis Title:</b> Performance of the Distributed Brillouin Sensor: Benefits and Penalties Due to Pump Depletion	Ph.D.	Chen, L./Bao	August 2007

Tyler Dumouchel	M.Sc.	R. deKemp	September 2007
<b>Thesis Title:</b> Performance Evaluation and Correction for Scatter and Attenuation on the LabPET4 Positron Emission Tomography System			
Elsayed Ali	M.Sc.	D. Rogers	September 2007
<b>Thesis Title:</b> Making EGSnrc/BEAMnrc system more efficient, accurate and realistic in simulation kilovoltage x-ray systems			
Travis Martin	M.Sc.	S. Godfrey	September 2007
<b>Thesis Title:</b> Analyzing new neutral gauge bosons at the LHC using third generation final states			
Ken Moats	M.Sc.	S. Godfrey	September 2007
<b>Thesis Title:</b> WZ scattering at the LHC in the littlest Higgs model			
Jean-François Joly	M.Sc.	B. Joós	November 2007
<b>Thesis Title:</b> La déformation d'une vésicule dans un écoulement			
Michel Gauthier	Ph.D.	Slater	November 2007
<b>Thesis Title:</b> Simulation of polymer translocation through small channels: A molecular dynamics study and a new Monte Carlo approach			
Sami Kamran	M.Sc.	K.Chen/L. Chen	December 2007
<b>Thesis Title:</b> Semi-empirical and 'ab initio' study of the ideal strengths and elastic properties of covalent crystals and FCC metals			
Kenji Myint	Ph.D.	Gerig	December 2007
<b>Thesis Title:</b> Dose errors in external beam treatment planning			
Cole Van Vlack	M.Sc.	Brabec	December 2007
<b>Thesis Title:</b> Time dependent complex scaling theory			

### Graduate Students at the Institute in 2007

Student	Registered	Supervisor(s)	Completed
Abuzariba, Suad M.	(O) Ph.D.	Chen, L./Bao	
Ali, Elsayed	(C) M.Sc.	Rogers	Sept. 2007
Ali, Elsayed	(C) Ph.D.	Rogers	
Al-Marzoug, Saeed	(O) Ph.D.	Hodgson	
Al-Qadi, Khalid	(O) Ph.D.	Stadnik	
Andrievski, Andrei	(C) M.Sc.	Wilkins	Jan. 2007
Archambault, J.P.	(C) Ph.D.	Vinctor	

Awirothananon, Sunida	(O) Ph.D.	Fafard	Apr. 2007
Barrie, Gregory	(O) Ph.D.	Longtin	
Beaton, Lindsay	(C) M.Sc.	Wilkins	
Bektursunova, Rimma	(O) Ph.D.	L'Heureux	
Bertrand, Julien	(O) Ph.D.	Corkum	
Bertrand, Martin	(O) M.Sc.	Slater	May 2007
Bertrand, Martin	(O) Ph.D.	Joós	
Bolen, Ryan	(O) M.Sc.	Bao	
Bond, Jeffery	(O) M.Sc.	Finnie	May 2007
Boucher, Pierre-Alexandre	(O) Ph.D.	Joós	
Brabant, Daniel	(O) Ph.D.	Longtin	
Casault, Sébastien	(O) M.Sc.	Slater	March 2007
Casault, Sébastien	(O) Ph.D.	Slater	
Chamberland, Marc	(C) M.Sc.	Xu	
Cherpak, Amanda	(C) M.Sc.	Cygler	Aug. 2007
Cherpak, Amanda	(C) Ph.D.	Cygler	
Chigodaev, Alexander	(C) M.Sc.	Logan	
Cieniak, Jakub	(O) M.Sc.	Longtin	
Clark, Cynthia	(O) Ph.D.	Munger	
Cojocaru, Claudiu	(C) Ph.D.	Vincter	
Drouin, Pierre-Luc	(C) Ph.D.	Bellerive	
Dubé, Antoine	(O) M.Sc.	Slater	
Dumouchel, Tyler	(C) M.Sc.	deKemp	Sept. 2007
Flacau, Roxana	(O) Ph.D.	Desgreniers/Tse	July 2007
Foottit, Claire	(C) M.Sc.	Cameron	
Fraser, Dawn	(O) M.Sc.	Kaern	
Frédéric, Simon	(O) Ph.D.	Williams	
Fu, Nicole	(O) M.Sc.	Joós (for C. Willott)	
Garcia, Marie Lourdes	(C) Ph.D.	D. Wilkins	
Gauthier, Michel	(O) Ph.D.	Slater	Nov. 2007
Gertsvolf, Marina	(O) Ph.D.	Corkum	
Ghasroddashti, E.	(C) Ph.D.	Gerig	Jun. 2007
Gil, Elena	(C) M.Sc.	Cygler	
Golin, Sarah	(O) M.Sc.	Corkum	
Greene, Chad	(C) M.Sc.	Graham	
Heelan, Louise	(C) Ph.D.	Oakham	
Hickey, Owen	(O) Ph.D.	Slater	
Hsieh, Chang-Yu	(O) Ph.D.	Hawrylak	
Ivanovic-Giubega, Marta	(C) M.Sc.	Wells	
Joly, Jean-François	(O) M.Sc.	Joós	Nov. 2007
Jun, Jaeyoon James	(O) M.Sc.	Longtin	
Kamran, Sami	(O) M.Sc.	Chen,K./Chen,L.	Dec. 2007
Kenward, Martin	(O) Ph.D.	Slater	March 2007
King, Brian	(C) Ph.D.	Johns	
Kingsburry, Christine	(O) M.Sc.	Slater	
La Russa, Dan	(C) Ph.D.	Rogers	

Latorre, Malcom	(O) Ph.D.	Munger	
Leblanc, Serge	(O) Ph.D.	Munger	
Leeson, Jesse	(O) M.Sc.	Bao	
Lefebvre, Jérémie	(O) M.Sc.	Longtin/Leblanc	
Li, Yun	(O) Ph.D.	Bao	
Li-Pook-Than, Andrew	(O) M.Sc.	Finnie	
D. Maclennan	(C) M.Sc.	Logan	
Marchand, Philippe	(O) M.Sc.	Rancourt	
Martin, Travis	(C) M.Sc.	Godfrey	Sept. 2007
Martin, Travis	(C) Ph.D.	Godfrey	
Martinez-Ortega, Jose M.	(C) Ph.D.	Jarosz	
McDonald, Chris	(O) M.Sc.	Brabec	Apr. 2007
McDonald, Chris	(O) Ph.D.	Brabec	
McElcheran, Clare	(O) M.Sc.	Ramunno	
Meunier, Jean-François	(O) M.Sc.	Rancourt	
Moats, Ken	(C) M.Sc.	Godfrey	Sept. 2007
Moats, Ken	(C) Ph.D.	Godfrey	
Murphy, Tara	(C) M.Sc.	Cygler	
Myint, K.	(C) Ph.D.	Gerig	Dec. 2007
Olariu, Elena	(C) M.Sc.	Cameron	
Payette, Nathalie	(O) M.Sc.	Rancourt	Withdrew
Pourmoghaddas, A.	(C) M.Sc.	Wells	
Prévost, Jean-Paul	(O) Ph.D.	Rancourt	
Ravet, Fabien	(O) Ph.D.	Bao/Chen	Aug. 2007
Reimer, Michael	(O) Ph.D.	Williams	
Rollin, Etienne	(C) Ph.D.	Graham	
Samadifard, Nazanin	(O) M.Sc.	Harden	
Schram, Malachi	(C) Ph.D.	Oakham	
Sean, David	(O) M.Sc.	Slater	
Shiner, Andrew	(O) Ph.D.	Villeneuve/Bhardwaj	
Simard, Olivier	(C) Ph.D.	Bellerive	
Smeenck, Christopher	(O) M.Sc.	Corkum	
Smelser, Christopher	(O) Ph.D.	Mihailov	Jan. 2007
Smith, Jesse	(O) Ph.D.	Desgreniers	
Snooddy, Jeffrey	(O) M.Sc.	Bao	
Soleimani, Mojgan	(C) M.Sc.	Xu	
Stojanovic, Severin	(O) M.Sc.	L'Heureux/Rancourt	
Strydhorst, Jared	(C) M.Sc.	MacPherson	
Taylor, Jason	(O) Ph.D.	Schriemer	Withdrew
Tesic, Gordana	(C) Ph.D.	Bellerive	
Torres, Francis	(O) M.Sc.	Slater	
Truica, Sorina	(C) Ph.D.	Cameron	
Tselikhovich, Dmitriy	(C) M.Sc.	Kalyniak	
Vachon, Martin	(O) M.Sc.	Raymond	
Van Vlack, Cole	(O) M.Sc.	Brabec	Dec. 2007
Vinten, Phillip	(O) M.Sc.	Finnie	

Waldron, Jonathan	(O) M.Sc.	Kaern
Walker, Alexander	(O) M.Sc.	Modern Technology
Walker, Robert	(O) Ph.D.	Bao/Mihailov
Wan, Fan	(O) M.Sc.	Harden
Wang, Lilie	(C) Ph.D.	Rogers
Wang, Pu	(O) Ph.D.	Stadnik
Whalen, Kate	(C) M.Sc.	Vincter
Wheeldon, Jeffrey	(O) Ph.D.	Hall/Schriemer
Wong, Michael	(O) Ph.D.	Bhardwaj
Wood, T.	(C) M.Sc.	Cygler
Xie, Li	(O) M.Sc.	Chen, L.
Zhang, Ziyi	(O) Ph.D.	Chen, L./Bao

### PDF and Research Associates at the Institute in 2007

Name	Period	Supervisor(s) or Group
L. Arissian	Jan. 2008 to present	Corkum/Villeneuve
J.-P. Brichta		Bhardwaj
A. Boguslavskiy		Stolow
K. Boudjemline		The SNO/SNOLAB Group
J. Cameron	Sept. 2005-Sept. 2007	Bao/Chen, L.
J. Cao	Fall 2007 to present	P.Kalyniak/H.Logan/S.Godfrey
G. Cron		I. Cameron
A. Cardenas-Blanco		I. Cameron
M. Chubynsky	Sept. 2007 to present	Slater
S. Dick	Jan. 2006 to present	Harden
H. De Haan	May 2007 to present	Slater
F. Delgado		Hawrylak
N. Dudovich	2005-2007	Corkum
A. Fleisher	2007 to present	Corkum/Villeneuve
E. Frumker	Dec. 2007 to present	Corkum/Villeneuve
N. Gador		Stolow
D. Grojo	2007 to present	Corkum
H. Hou		S. Godfrey/P.Kalyniak/H.Logan
A. Hutt	July 2007 to Dec. 2007	Longtin
N. Kajumba	2007 to present	Corkum/Villeneuve
K. Kaminska		Finnie
V. Kalosha	Sept. 2004-Dec. 2008	Bao/Chen, L.
M. Khakzad	Aug. 2007 to present	Oakham/Asner/Vincter
R. Khanbabaie	Sept. 2006 to present	Longtin/Maler
W. Li	Nov. 2006-Apr. 2008	Bao/Chen, L.
Y. Li	Dec. 2007-Nov. 2008	Bao
Y. Mairesse	2005-2007	Corkum
G. Marsat	Oct. 2007 to present	Longtin/Maler

J. Middleton	Sept. 2006 to Sept. 2007	Longtin
H. Niikura	Aug. 2000 to present	Corkum/Villeneuve
R. Patattil	2004-2007	Corkum
D. Pavicic	2004-2007	Corkum
C. Liu	Oct. 2007 to present	Oakham/Asner/Vincter
J. Reuter	early months of 2007	H.Logan/P.Kalyniak/S.Godfrey
H. Satzger		Stolow
Y.-P. Shim		Hawrylak
A. Singh		Bhardwaj
A. Staudte	2005 to present	Corkum/Villeneuve
P. Terziyska	Aug. 2007 - Jan. 2008	H. Schriemer
R. Thomson	Sept. 2007 to present	D.W.O. Rogers
D. Townsend		Stolow
C. Trallero	2007 to present	Corkum/Villeneuve
H. Worner	2007 to present	Corkum/Villeneuve
G. Xiong	July 2006 – Dec. 2007	D.W.O. Rogers
S. Yang	Sept. 2003 – Mar. 2007	Bao/Chen, L.
Z. Yang		Oakham/Asner/Vincter
F. Zhan		The SNO/SNOLAB Group
L. Zhan	Oct. 2007 to present	Slater
X. Zhang	July 2007– Sept. 2007	Bao
C. Zhang	Sept. 2006-Aug. 2008	Bao/Chen, L.
Z. Zhang	Jan. 2006-Dec. 2008	Bao/Chen, L.
P. Zhu	June 2006-June 2007	Bao
M. Zielinski		Hawrylak

## Funding in 2007

Name	Source	Amount Per Year
<b>X. Bao</b>	CIPI/HydroQuebec	\$50,000
	GEOIDE/CIPI	\$86,700
	CIPI-NCE	\$30,000
	AAPN	\$42,000
	NSERC	\$60,000
	NCE-ISIS	\$80,000
	CRC	\$81,150
<b>A. Bellerive</b>	PREA	\$30,000
<b>A. Bellerive + (R. Hemingway, D. Sinclair)</b>	NSERC (Project grant SNO)	\$266,000
<b>R. Bhardwaj</b>	NSERC RTI “Optical Parametric Amplifier” NSERC Special Research Opportunity Grant	\$106,000

	“Multielectron dynamics in complex systems”	\$1,200,000
<b>T. Brabec</b>	NSERC Discovery (07-11)	\$32,000
<b>I. Cameron</b>	Ontario Research & Development Challenge Fund	\$150,000
<b>K. Chen</b>	Natural Resources Canada:	\$15,000
	ATI Allvac-US:	\$10,000
	DND-TIF:	\$30,000
	Structural Materials Performance Lab,IAR-NRC:	\$15,000
<b>L. Chen</b>	NSERC (Discovery)	\$16,346
	NCE-CIPI	\$1,554
	OCE-PRO	\$13,500
	Industries BTI Systems	\$2,725
<b>B.G.Clark + (J.E. Cygler, M. MacPherson)</b>	Elekta	\$83,000
<b>P. Corkum</b>	NRC (98-07)	\$200,000
	NSERC (02-07)	\$40,000
	NSERC (98-08) Centre of excellence	\$40,000
	NSERC (03-07) Accelerator grant	\$50,000
	Ontario (07-09)Centres of excellence	\$25,000
<b>J.E. Cygler</b>	HTX-IRAP	\$207,000
<b>S. Desgreniers</b>	NSERC(Discovery)	\$50,920
	NSERC (RTI-sole applicant)	\$69,700
	NSERC (RTI – co-applicant)	\$143,469
<b>M. Dixit (+ A. Bellerive)</b>	NSERC	\$42,500
<b>P. Finnie</b>	NSERC Discovery (04-07)	\$18,000
	Japan Science and Technology Agency CREST Grant (07)	
	Personal portion 2007:	\$22,330
<b>S. Godfrey</b>	NSERC (Discovery)	\$70,000
<b>K. Graham</b>	EXO (Discovery)	\$70,000
	CFI Award	\$240,000
	DEAP Project Grant	\$40,000
<b>J. Harden</b>	NSER/CIHR (07-10) (Co-PI)	\$139,151
	NSERC Discovery (07-12)	\$52,030

	NSERC (Equipment) (07-08)	RTI	\$137,904
	CFI LOF (Equipment) (07-09)	PI	\$199,920
	uOttawa(CRANTufts University) (07-09)	PI	\$20,000
<b>P. Hawrylak</b>	NSERC (Discovery)		\$13,000
	Quantum Works		\$45,000
	Canadian Institute for Advanced Research		\$75,000
<b>B. Jarosz</b>	NSERC (Discovery)		\$9,880
<b>P. Johns</b>	NSERC (Discovery)		\$20,000
<b>B. Joós</b>	NSERC (Discovery)		\$40,348
<b>M. Kaern</b>	NSERC (Discovery)		\$34,500
	CIHR		\$138,900
<b>P. Kalyniak</b>	NSERC (Discovery)		\$35,000
<b>H. Logan</b>	NSERC (Discovery)		\$45,000
	IPP/Perimeter Fellowship for Dr. J. Reuter		\$5,000
<b>I. L'Heureux</b>	NSERC (Discovery) (07-11)		\$26,800
<b>A. Longtin</b>	NSERC (Discovery)		\$50,000
	CIHR (with Maler, PI)		\$158,581
	MITACS (for Computational Neuroscience summer school)		\$10,000
<b>R. Munger</b>	OTTN (07-08) (PI)		\$10,000
	CIHR (07-10) (PI)		\$83,540
	Ontario Centres of Excellence (07-08) (PI)		\$89,500
	Ontario Centres of Excellence (06-07) (PI)		\$38,000
	Physician Services Inc. of Ontario (05-07) (PI: W. Hodge)		\$5,000
	Bausch & Lomb contract (07-08) (PI)		\$5,000
	Bausch & Lomb contract (07-08) (PI)		\$7,500
	AMO/VISX contract (04-07) (PI)		\$220,000
	VISX Inc. contract (02-07) (PI)		\$240,000
<b>G. Oakham + (M. Vincter, D. Asner)</b>	NSERC Project Grant (ATLAS)		\$253,700
<b>G. Oakham + M. Vincter</b>	NSERC MEG ATLAS Common Fund (with 24 other Canadian investigators)		\$260,000
<b>G. Oakham + M. Vincter</b>	NSERC MEG ATLAS (cost to completion) (with 28 other Canadian investigators)		\$375,000

<b>G. Oakham +</b>	NSERC MFI (infrastructure for Particle Physics)	\$210,000
	(A. Bellerive, M. Dixit, C. Hargrove, R. Hemingway, D. Sinclair, M. Vincter)	
<b>L. Ramunno</b>	Canada Research Chair (PI) (07-11)	\$23,820
	NSERC Discovery (07-10)	\$68,078
	CFI, LOF (PI), Equipment (07-09)	\$150,000
	MRI, Ontario Research Fund (PI), Equipment (07-09)	\$150,000
	Ontario Early Researcher Award (PI), Operating (07-11)	\$150,000
	Start up fund, Faculty of Science (PI), Operating (07-09)	\$40,000
<b>S. Raymond</b>	NSERC (Discovery)	\$18,780
<b>D. Rogers</b>	NSERC	\$32,000
	BEAMnrc Courses	\$19,700
	V-P Research	\$25,000
<b>H. Schriemer</b>	CMC Microsystems (07 – 09), (\$36, 960)	
	T. Hall (PI), H. Schriemer, K. Hinzer	
	Personal portion 2007:	\$4,000
	CMC Microsystems (07 – 09), (\$60, 480)	
	H. Schriemer (PI), K. Hinzer, T. Hall	
	Personal portion 2007:	\$20,000
	NSERC SRO (07-10), (\$272,300)	
	R. LaPierre (PI), H. Schriemer, Y. Haddara	
	Personal portion 2007:	\$10,000
	CFI LOF, (07-09), (\$64,625)	
	Personal portion, 2007:	\$39,588
	ORF, (07-09), (\$64,625)	
	Personal portion, 2007:	\$39,588
	CMC Microsystems (07-09), (\$23,149)	
	Personal portion, 2007:	\$10,000
	CPFR/ORDCF (06-08), (\$150,000)	
	K. (PI), T.J. Hall, H. Schriemer, S. Desgreniers	
	Personal portion, 2007:	\$7,500.
	NSERC (Discovery) (06-11):	\$25,000.
	CMC (05-08), (\$84,000)	
	T. Hall (PI), H. Schriemer	
	Personal portion, 2007:	\$17,000.
	OCE-PRO (05-07), (\$170,383)	
	T. Hall (PI), H. Schriemer, R. LaPierre	
	Personal portion, 2007:	\$21,000
	OPC (05-07) (\$33,000)	
	H. Schriemer (PI), T. Hall, R. LaPierre	
	Personal portion, 2007 :	\$4,000

	NSERC SPG (04-07), (\$480,050) T. Hall (PI), H. Schriemer Personal portion, 2007:	\$35,500
<b>G. Slater</b>	NSERC Discovery (07-12): NIH (07-10), (US\$500,000) A. Barron (PI), NWU Personal portion Networks of Centres of Excellence (06-08): Personal portion Univ. of Ottawa & Fac. of Science (04-09) (University Research Chair in Biological Physics) NIH (03-07), (US\$ 250,000) A. Barron (PI), NWU Personal portion: NSERC Discovery (02-07):	\$67,600  US\$52,000 US\$22,000 \$35, 000 US\$70,060 \$69,000
<b>Z.M. Stadnik</b>	NSERC (Discovery)	\$39, 010
<b>A. Stolow</b>	NSERC (Discovery) CIHR Nanomedicine Operating Grant (Team)	\$25,000 \$57,650
<b>J. Tse</b>	NSERC RTI	\$150,000
<b>G. Wells</b>	CIHR	\$222,693
<b>R. Wilkins</b>	CIHR (Discovery)	\$32,400
<b>R.L. Williams</b>	QuantumWorks NSERC (Discovery)	\$30,000 \$16,890
<b>D. Villeneuve</b>	NSERC (Discovery) USAF AFOSR (with Paul Corkum)	\$27,400 \$80,000
<b>T. Xu</b>	NSERC (Discovery) NIH (US)	\$18,000 US\$15,000