Ottawa Carleton Institute for Physics
L'Institut de physique d'Ottawa Carleton

2000 Newsletter

The year 2000 was another productive year for the Ottawa Carleton Institute for Physics. Our numbers of graduate students continue to grow. The Institute members have been active as ever in their research projects, as evidenced by the extensive publications and conference presentations recorded in this newsletter.

There were 4 Ph.D. graduates and 7 M.Sc. graduates during 2000. A total of 68 students were registered in our graduate program in the calendar year 2000, a sizable increase from 57 and 55 in 1999 and 1998, respectively.

During the year, Institute members gave 140 talks at conferences and research institutions around the world. Over 150 articles were published. These presentations and publications represent the broad range of research areas undertaken at the Institute, which include fundamental studies of matter at scales from 10^{-3} m to 10^{-18} m, as well as research with applications in earth and life sciences and information technology. The total research funding of Institute members is an impressive 4.6 million dollars.

This year we welcomed two new faculty members at the University of Ottawa, Professors Xiaoyi Bao and Liang Chen. Their areas of expertise in photonics and fiber optics is in great demand in the Ottawa high technology sector. In addition, Robyn Williams joined the University of Ottawa as an adjunct professor in semiconductor physics. Two new adjunct professors in medical physics joined Carleton University, Ken Shortt and Robert deKemp. Ivan L'Heureux became the new chair of physics at the University of Ottawa, taking over the reins from Béla Joós. The associate directorship of OCIP was passed from Ivan to Richard Hodgson.

A couple of large projects involving University of Ottawa faculty got off the ground this year. The Lake Sediment Structure and Evolution project received an NSERC Strategic Project Grant worth over 1.5 M$ (spread over 5 years). Institute members include Serge Desgreniers, Gilles Lamarche, Ivan L'Heureux, and Denis Rancourt. The High Performance Computing Virtual Laboratory, involving researchers at University of Ottawa, Carleton University, Queen's University and the Royal Military College, received funding of over $35 million dollars from government, industry, and University sources. Gary Slater is one of the 10 main applicants for this project.

In particle physics research at Carleton University, one era has come to an end as others are just beginning. The OPAL experiment completed its 12-year run of data collection at the LEP accelerator at CERN, which has brought a wealth of new knowledge to the field. Tantalizing indications of the elusive Higgs particle resulted in a great debate about a possible extension to the program. However, in the end it was decided to close LEP, to make way for the new proton collider, the LHC, and its experiments including ATLAS. Institute members are involved in OPAL and ATLAS. The Sudbury Neutrino Observatory

presented its first results and there is great worldwide interest in further measurements to clarify the mystery of missing solar neutrinos and neutrino oscillations. Several Carleton members are also involved in studies for a future linear electron-positron collider.

Many members of the institute continue to offer their services to the physics community nationally and internationally. Some of these activities are highlighted below.

Serge Desgreniers was chair of the Cornell High Energy Synchrotron Source Users Meeting and co-organizer of the "High Pressure Using Synchrotron Facilites" Workshop at Cornell University.

M. D'Iorio who leads the Advanced Materials group of the Institute for Microstructural Sciences at NRC is presently serving as Acting-Director, Components Technologies, Institute for Microstructural Sciences. She completed her term as President of the Canadian Association of Physicists in June 2000, and now serves as Past-President.

S. Fafard was the symposium organizer for the MRS meeting in Fall 2000 and served on the international advisory committees for the 3rd international conference on low dimensional structures and devices and the Integrated Photonic Research Conference.

Stephen Godfrey was co-convenor of the *QCD in Spectroscopy* sessions of the Seventh Conference on the Intersections of Particle and Nuclear Physics, in Quebec City and the e^+e^- *Collider Physics* Session Chairman, for the Symposium on Phenomenology for the New Century in Madison Wisconsin.

Clive Greenstock served as an invited peer reviewer on the Canadian Institutes of Health Biomedical Engineering Committee. and as an outside evaluator for the NSERC University-Industry Research Partners program, and the Industrial Research Assistance Program. He was a scientific adviser for the International Science Fair, San Jose.

Pawel Hawrylak was appointed as an Associate, Canadian Institute for Advanced Research, Nanoelectronics Program and was a member of the Program Committee for the International Conference "Quantum Dots 2000" held in Munich.

Pat Kalyniak completed her three-year term on the NSERC subatomic physics GSC and in 2000 she served as chair.

Andre Longtin organized an international workshop on Neural Dynamics entitled "Memory, Delays and Multistability in Neural Systems" in Montreal in October 2000. The Science Program ZONE X produced for Tele-Quebec made a seven minute report on his research on the effect of neuronal noise in neuronal information processing.

Activities at the Institute can be consulted online at http://www.ocip.carleton.ca, which has links to the departmental web sites at the University of Ottawa and Carleton University.

Dean Karlen, Director

Richard Hodgson, Associate Director

2000 OCIP Seminar Series

Spring Graduate Student Seminar Day – University of Ottawa – 30 May 2000

Josee Labrie	Etude theorique de la diffusion de particules et de polymeres en milieux poreux
Mei Li	GEM: a new detector for scanned projection radiography
James Evans	Calculating quadrupole splittings for Mossbauer spectroscopy in layer silicates
Mark McDonald	Feasibility of a Low-Field MR Imager Using Hyperpolarized ^{129}Xe
Justin Boileau	Diffusion of small molecules in sieving matrices: an exact model
Kenji Myint	Examination of the Non-Homologous Repair process in Cisplatin Radiosensitization and SLDR
Aiguo Cai	Study of surface flattening kinetics by low energy electron diffraction on rutile (110)

Fall Graduate Student Seminar Day – Carleton University – 11 December 2000

Zhanrong Gao	A two dimensional tumor growth model for radiation therapy process analysis
Mathieu Massé	Investigation of Bose-Einstein Condensation Effects with Excitons in Cu_2O
Nina Kalach	What constitutes a clinical radiotherapy photon beam?
Joan Haysom	Defects in InP - Their Role in Diffusion and Applications in Photonics
Mike Donkers	Counting Subjets at OPAL
Karin Hinzer	Optical spectroscopy of single quantum dots
Carey Feagan	The Role of p21 in Thermal Radiosensitization

OCIP Christmas Symposium – Carleton University – 18 December 2000

Steve Godfrey	$\pi\pi$ scattering: From MeV to TeV, From Strong to Weak, Something for Everyone
Robin Williams	Site selected quantum dot nanostructures
Bob Carnegie	Search for the Standard Model Higgs Boson at LEP
Gilles Lamarche	Giant Diamagnetism in Cr,Fe Selenides up to and beyond room temperature
Lee Gerig	A Model for the Process of Radiation Therapy
Xiaoyi Bao	Fiber optical sensing and communications

2000 Departmental Seminars

DATE	U	SPEAKER	INSTITUTION	TITLE
Jan. 12	C	Keith Riles	University of Michigan	To Catch a Wave: Searching for Gravitational Radiation
Jan. 17	C	Matthew Jones	University of Pennsylvania	Mixing and CP violation at CDF in Run-I and Run-II
Jan. 24	C	Dave Hanes	Queen's University	Globular Star Clusters as a Dynamical Test
Jan. 31	C	Ken Shortt	NRC	Metrology of Ionising Radiation in Canada
Feb. 7	C	R. Sega	University of Colorado	Space, Technology and Education: Past, Present and Future
Feb. 14	C	Francois Corriveau	McGill University	Jet Physics with ZEUS at HERA
Feb. 17	O	Daniel Cherniak	Rensselaer Polytechnic Institute	Studies of Diffusion in Zircon with MeV Ion Beam Techniques
Feb. 28	C	John Reid	JDS Uniphase	The Fiber-Optic Revolution in Telecommunications -- Research Trends and Career Opportunities
Mar. 6	C	Norbert Bartel	York University	Very-Long-Baseline Interferometry of a Supernova
Mar. 9	O	Denis Rancourt	University of Ottawa	Aquatic Sediments
Mar. 13	C	Siegfried Janz	NRC	Wavelength conversion in asymmetric quantum well waveguides
Mar. 16	O	Ralf Mayer	Universite de Montreal	Martensitic Transitions
Mar. 20	C	Ruth Wilkins	Health Canada	Development of a biological dosimeter for ionizing radiation
Mar. 21	C	Georges Azuelos	U. de Montreal	Strong Symmetry Breaking signals
Mar. 27	C	Michael Hudson	University of Waterloo	Beyond the Great Attractor: Probing Dark Matter with Cosmic Flows

Mar. 30	O	Leonid Yurganov	University of Toronto	Monitoring Global Changes: Spectroscopic Measurements from the Ground and Space
Apr. 13	O	Michel Côté	Cambridge University	Study and Design of New Materials: Boron Nitride Polymers and Electronic Mobility in Organic Semiconductors
Apr. 20	O	Yvon Lepage	NRC - ICPET	XXI st – Century Perspectives Opened by the Integration ofCrystal Structure Databases and Quantum Software
May 18	O	Sami Mahmood	University of Yarmouk	Simulating Entrance Flows of Molten Polymers: Barriers to Progress
Aug. 31	C	Suruj Seunarine	University of Kansas	The RICE Experiment
Sept. 11	C	Bryce Bates	Carleton University	Investigation of Lensed Fiber and Laser Diode Alignment within Laser Modules
Sept. 18	C	George M. Daskalov	NRC - IRS/INMS	Discrete Ordinates Photon Transport Calculations for Brachytherapy Treatment Planning Applications
Oct. 2	C	Dipak Basu	Carleton University	Solar Neutrinos, Solar Activity, Solar Diameter and Solar Wind
Oct. 16	C	Gabriel Lam	Ottawa Regional Cancer Centre	The Biophysical Study of Radiation Tolerance Doses of Normal Tissue in Cancer Radiotherapy
Oct. 19	O	J.A. Freud	Humboldt-University	Noise-Induced Phase Synchronization: An Analytic Approach Propagation of Intense Femtosecond Laser Pulses Through Atmosphere
Oct. 26	O	André Mysyrowicz	École Polytechnique Palaiseau	Propagation of Intense Femtosecond Laser Pulses Through Atmosphere
Nov. 2	O	Ralf Engbert	University of Postdam	Control of eye movements in reading: A dynamical systems approach to cognitive processes
Nov. 13	C	Robert Kearney	McGill University	Methods for the Identification of Nonlinear Biomedical Systems and their Application to Human Ankle Stiffness
Nov. 14	C	Alan Shotter	TRIUMF	Radioactive Beams and Nuclear Astrophysics: Past and Future Experimental Challenges
Nov. 15	C	Alan Astbury	TRIUMF	Cancer and Cosmic Rays

Nov. 20	C	Nikolai Romanenko	Carleton University	Search for Lepton Flavour Violation and Exotic Charged Higgs Particles at the Next Linear Collider
Nov. 23	O	D. P. Masson	STMicroelectronics	Microanalytical Techniques & Tools for Prototype, Damaged & Dead Micro-Chips
Nov. 24	C	Annie Hsu	Queen's University	Magnetic Barkhausen Noise From Magnetized Pipeline Steel
Nov. 27	C	Paul Jessop	McMaster University	Silicon-Based Optoelectronics
Dec. 4	C	Elizabeth Simmons	Boston University	New Electroweak Interactions for the Third Generation
Dec. 6	O	Liang Chen	University of Ottawa	Photonics: the backbone of the information highway
Dec. 7	O	P.B. Corkum	NRC – Steacie Institute	Spinning Molecules Until They Break

Publications in Refereed Journals and Book Series in 2000

Author(s)	Title	Publication
J. Cameron, **L. Chen**, **X. Bao**, C. Huang	Pulse narrowing due to optical interference in fibre optic systems with polarization dependent signal reception	Opt. Comm. 184, No.1-4, 7-12(2000).
J. Cameron, **L. Chen** and **X. Bao**	Anomalous pulse width narrowing with first order compensation of PMD	Opt Lett., 25, No. 12, 884-886 (2000).
L. Chen and **X. Bao**	Polarization-induced pulse narrowing in birefringent optical fiber with finite differential group delay	IEEE J. Lightwave Technology, 18, No. 5, 665-667 (2000).
Ping Lu, **X. Bao**, Kellie Brown and Narayan Kulkarni	Gamma-induced attenuation in normal single-and multi-mode, Ge-doped and P-doped optical fibers: a fiber optic dosimeter for low dose levels	Can J. Phys, 78, No. 2, 89-97 (2000).
M. DeMerchant, A. Brown, J. Smith, **X. Bao** and T.W. Bremner	Brillouin scattering based distributed sensing for civil structures	Canadian J. of Civil Eng, 27, No.5, 873-879 (2000).
P. Lu, **X. Bao**, T Whidden and S.Y. Lee	Application of a mid-infrared fibre bundle in remote measurement of gas concentrations in a CVD chamber	Applied Optics, 39, No.7 , 1112-1117(2000).
M . DeMerchant, A. Brown, **X. Bao** and T.W. Bremner	Signal processing for a high spatial resolution distributed sensor	Opt Engineering, 39, No.6, 1632-1635 (2000).
J. Cameron, **L. Chen** and **X. Bao**	Impact of chromatic dispersion on the system limitation due to PMD	IEEE Photonics Technology Lett. 11, No. 1, 47-49 (2000).
G.X. Ding, **J.E. Cygler**, C.B. Kwok	Clinical Reference Dosimetry: Comparison between AAPM TG-21 and TG-51 Protocols	Med. Phys. 27,1217-1225, 2000.
N. Sandborn, R. Stern, **S. Desgreniers**, G. Botton	Microstucture of Neoarchean Zircon from the Acasta Gneiss Complex	Current Research, Report 13, Geological Survey of Canada (2000).
S. Desgreniers, L. Beaulieu, and I. Lepage	Pressure-induced Structural Changes in ZnS	Phys. Rev.B 61: 8726 (2000).

C. Chouinard, and S. Desgreniers	Bi2O3 under hydrostatic pressure: Observation of pressure-induced amorphization	Solid State Comm.133: 125 (2000).
Wu, Q., Esteghamatian, M., Hu, N.-X., Popovic, Z., Enright, G., Tao, Y., **D'Iorio, M.**, and Wang, S.	Synthesis, Structure, and Electroluminescence of BR_{2q}, R=Ph, Et, 2-naphthyl, q = 8-hydroxyquinolato	Chem. Materials 12, 79-83 (2000).
Wu, Q., Lavigne, J. A., Tao, Y., **D'Iorio, M.**, and Wang, S.	Blue-Luminescent/Electroluminescent Zn(II) Compouds of 7-azaindole and N-(2-Pyridyl)-7-azaindole: $Zn(7\text{-azaindole})_2(CH_3COO)_2$, $Zn(NPA)(CH_3COO)_2$ and $Zn(NPA)((S)\text{-}(+)\text{-}CH_3CH_2CH(CH_3)COO)_2$ (NPA=N-(2-Pyridyl)-7-azaindole)	Inorg. Chem. 39, 5248-5254 (2000).
Donat-Bouillud, A., Levesque, I., Tao,Y., **D'Iorio, M.**, Beaupré, S., Blondin, P., Ranger, M., Bouchard, J., Leclerc, M.	Light-Emitting Diodes from Fluorene-Based p-Conjugated Polymers	Chem. Mater., 12, 1931-1936 (2000).
D'Iorio, M.	Molecular Materials for Microelectronics	Can. J. Phys. 78, 231-241 (2000).
Tao, Y., **D'Iorio, M.**, Wong, M.S., Li, Z.-H., Levesque, I., and Lam, J.	Luminescent and Electronic Properties of End-substituted Distyrylbenzene Derivatives	Nonlinear Optics 25, 491-496 (2000).
Lam, J., Gorjanc, T.C., Tao, Y., and **D'Iorio, M.**	Selective Doping of Multilayer Organic Light Emitting Devices	J. Vac. Sci. Technol. A 18, 593-596 (2000).
Py, C., **D'Iorio, M.**, Tao, Y., Stapledon, J., and Marshall, P.	A passive matrix addressed organic electroluminescent display using a stack of insulators as row separators	Synth. Metals 113, 298-301 (2000).
Tao, Y., Donat-Bouillud, A., D'Iorio, M., Lam, J., Gorjanc, T.C., Py, C., Wong, M.S., and Li, Z.H.	Organic Light Emitting Diodes Based on End-Substituted Oligo (PhenyleneVinylene)s	Thin Solid Films 363, 298-301 (2000).
Tao, Y., Donat-Bouillud, A., **D'Iorio, M.**, Lam, J., Gorjanc, T.C., Py, C., and Wong, M.S.	Luminescence Properties of End-Substituted Oligo(PhenyleneVinylene)s	Synth. Metals, 113, 417-420 (2000).

Py, C., **D'Iorio, M.**, Tao, Y., Stapledon, J.,and Marshall, P.	A passive matrix addressed organic electroluminescent display using a stack of insulators as row separators	Synth.Metals. 113, 155-159 (2000).
Lu , J., Hlil, A.R., Meng, Y., Hay, A.S., Tao, Y., **D'Iorio, M.**, Maindron, T., and Dodelet, J. P.	Synthesis and Characterization of a Novel AlQ_3-Containing Polymer	J. of Pol. Sci. A38, 2887-2892 (2000).
Lu, J., Hlil, A., Hay, A.S., Maindron, T., Dodelet, J.P., Lam, J., and **D'Iorio, M.**	Synthesis of poly(arylene ether)s containing hole-transport moieties from an isocyanate masked bisphenol	Journal-of-Polymer-Science,-Part-A-(Polymer-Chemistry) 38, 2740-8 (2000).
J.J. Dubowski, C. Nì. Allen, **S. Fafard**	Laser-induced InAs/GaAs Quantum Dot intermixing	Appl. Phys. Lett. 77, 3583 (2000).
P.G. Piva, R.D. Goldberg, I.V. Mitchell, D. Labrie, R. Leon, **S. Charbonneau**, Z.R. Wasilewski, **S. Fafard**	Enhanced Degradation Resistance of Quantum Dot Lasers to Radiation Damage	Appl. Phys. Lett. 77, 624 (2000).
N. Perret, D. Morris, L. Franchomme-Fossé, R. Côté, **S. Fafard**, V. Aimez, J. Beauvais	The origin of the inhomogenous broadening and alloy intermixing in InAs/GaAs self-assembled quantum dots	Phys. Rev. B. 62, 5092 (2000).
P. McCaffrey, M.D. Robertson, Z.R. Wasilewski, E.M. Griswold, L.D. Madsen, **S. Fafard**	Determination of the size, shape, and composition of indium-flushed self-assembled quantum dots by transmission electron microscopy	J. Appl. Phys. 88, 2272 (2000).
S. Raymond, K. Hinzer, **S. Fafard**, J.L. Merz	Experimental determination of Auger capture coefficients in self-assembled quantum dots	Phys. Rev. B 61, R16331 (2000).
S.Fafard	Quantum Dot structures and devices with sharp adjustable electronic shells	Physica E 8, 107 (2000).
S.Fafard	Near-surface InAs/GaAs Quantum Dots with sharp electronic shells	Appl. Phys. Lett. 76, 2707 (2000).
S.Fafard, M. Spanner, J.P. McCaffrey, Z. R. Wasilewski	Coupled InAs/GaAs Quantum Dots with well-defined electronic shells,	Appl. Phys. Lett. 76, 2268 (2000).
K. Hinzer, C. Nì Allen, J. Lapointe, D. Picard, Z. R. Wasilewski, **S. Fafard**, A.J. SpringThorpe	Widely tunable self-assembled quantum dot lasers	J. Vac. Sci. Technol. A18, 578 (2000).

K. Hinzer, J. Lapointe, Y. Feng, A. Delage, and **S. Fafard**, A. J. SpringThorpe and E. M. Griswold	Short-wavelength laser diodes based on AlInAs/AlGaAs self-assembled quantum dots	J. Appl. Phys. 87, 1496 (2000).
E. Fortin and A. Mysyrowicz	Bose-Einstein condensation and superfluidity of excitons in Cu_2O.	J. of Luminescence 87-89, 2000, 12-14.
S. Malone, R. Donker, M. Broader, S. Dahrouge, J. Szanto, **L. Gerig**, G. Bociek, J. Crook	Effects of urethrography on prostate position: considerations for radiotherapy treatment planning of prostate carcinoma	International Journal of Radiation Oncology Biology Physics 46 (1) pp. 89-93, 2000.
S. Godfrey, **P. Kalyniak**, B. Kamal and A. Leike	Discovery and Identifictation of Extra Gauge Bosons in ee $\rightarrow \nu\nu\gamma$	Phys. Rev. D61, 113009 (2000).
H.G. Blundell, **S. Godfrey**, G. Hay, and E.S. Swanson	A Quark Model Calculation of $\gamma\gamma \rightarrow \pi\pi$ Including Final State Interactions	Phys. Rev. C61, 025203 (2000).
S. Godfrey, **P. Kalyniak**, B. Kamal, A. Leike	Constraints on Extra Gauge Bosons in eγ Collisions	J. Mod. Phys. A15, 2623 (2000).
K.J. Lenton and **C.L. Greenstock**	Ability of Human Plasma to Protect against Ionizing Radiation is Inversely Correlated with Age	Mech. Ageing Develop., 107, 15-20 (2000)
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M. Bayer, O. Stern, **P. Hawrylak**, **S. Fafard**, A. Forchel	Hidden symmetries in the energy levels of excitonic artificial atoms in quantum dots	Nature 405, 923 (2000).
G. A. Narvaez and **Pawel Hawrylak**	Effects of electron-electron interactions on excitonic absorption in charged self-assembled quantum dots	Phys. Rev. B 61, 13753 (2000).
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M. Ciorga, A. S. Sachrajda, **P.Hawrylak**, C. Gould, P. Zawadzki, S.Jullian, Y. Feng, and Z.Wasilewski	Addition spectrum of a lateral dot from Coulomb and spin-blockade spectroscopy	Phys. Rev. B 61, R16315 (2000).
A. Wojs, J. J. Quinn, and **P. Hawrylak**	Charged excitons in a dilute two-dimensional electron gas in a high magnetic field	Phys. Rev. B 62, 4630 (2000).
Hodgson, R.J.W.	Genetic Algorithm Approach to Particle Identification by Light Scattering.	Journal of Colloid and Interface Science, 229 (2000) 399-406.
B. J. Jarosz	Interstitial Instrumentation for Therapeutic Ultrasonic Heating: Modelling the Discrete Blood Vessels	IEEE Trans. Instrum. Meas., vol. 49, no. 2, 260-264, 2000.
B. Joós and Z. Zhou	Realizing the canonical ensemble in highly entropic inhomogeneous materials	Phys. Rev. E., 61: 2410-2417, 2000.
Z. Zhou, Z., P-Y Lai, and **B. Joós**	Rigorous solution for the elasticity of diluted Gaussian spring networks	Phys. Rev. E., 62: 7490-7493, 2000.
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LeBlanc, M.A.R., Rezeq, Moh'd, Cameron, D.S.M. and LeBlanc, D.	Comment on "Angle dependence of magnetization in a single domain $YBa_2 Cu_3 O_x$ sphere	Phys. Rev. B 61, 3745-47, 2000.
Fisher, L.M., Il'enko, K.V., Kalinov, A.V., **LeBlanc, M.A.R.**, Perez-Rodriguez, F., Savel'ev, S.E., Voloshin, I.F. and Yampol'skii, V.A.	Suppression of the magnetic moment under the action of a transverse magnetic field in hard superconductors	Phys. Rev. B 61, 15382-91, 2000.
LeBlanc, M.A.R., LeBlanc, D., Cameron, D.S.M. and Celebi, S.	Disclosure of hidden magetic moments in low and high T_c hysteretic and semi-reversible type II superconductors during warming to T_c	Supercond. Sci. Techn. 13, 109-126, 2000.
Celebi, S. and **LeBlanc, M.A.R.**	Magnetic relaxation in a commercial Bi: 2223/Ag tape at 77K	Supercond. Sci. Techn. 13, 1057-61, 2000.

Guillouzic, S., **L'Heureux, I.** and **Longtin, A.**	Rate processes in a stochastically driven delayed overdamped system	Phys. Rev. E 61, 4906-4914, 2000.
Katsev, S. and **L'Heureux, I**.	Impact of environnemental noise on oscillatory pattern formation in crystal growth: plagioclase feldspar	Phys. Rev. E61, 4972-4979, 2000.
L'Heureux, I.	Origin of banded patterns in natural sphalerite	Phys. Rev. E 62, 3234-3245, 2000.
L'Heureux I. and Fowler, A.D	A simple model of flow pattern in overpressured sedimentary basins with heat transport and fracturing	J. Geophys. Res. 105, 23741-23752, 2000.
L'Heureux, I. and Fowler, A.D.,	Oscillatory zoning in minerals: mechanisms and implications	Jahrbuch Selbstorganisation, vol. 11 (H.-J. Krug, ed.), Berlin, 2000.
Longtin, A.	Adiabatic and non-adiabatic resonances in excitable systems	Stochastic Processes in Physics, Chemistry, and Biology,Lecture Notes in Physics, Vol. 557 (Springer Verlag, Berlin) pp.172-181.
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Longtin, A.	Effect of noise on the tuning properties of excitable systems	Chaos, Solit. and Fract. 11, 1835-1848.
Roper, P., Bressloff, P.C. and **Longtin, A.**	A phase model of the temperature sensitivity of mammalian cold receptors	Neural Comput. 12, 1087-1113.
Longtin, A.	Stochastic aspects of Neural Phase Locking To Periodic Signals	Stochastic Dynamics and Pattern Formation in Biological Systems, S. Kim, K.J. Lee and W. Sung, eds., Seoul, Korea.
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J.-F. Mercier, **G. W. Slater**	Random-Walk and Diffusion of Hard Spherical Particles in Quenched Systems: Reaching the Continuum Limit on a Lattice	J. Chem. Phys. 113, 9109-9112
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J. Labrie, J.-F. Mercier, **G.W. Slater**	An Exactly Solvable Ogston Model of Gel Electrophoresis V: Attractive Gel-Analyte Interactions and Their Effects on the Ferguson Plot	Electrophoresis 21, 823-833.
Z.M. Stadnik	Photoemission studies of quasicrystals	Mater. Sci. Eng. A 294-296, 470 (2000).
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Author(s)	Title	Conference/Publication
L. Chen, M. Yanez and **X. Bao** and B. Petersen	Pulse narrowing in optical components with PMD using polarization controls	Proceedings of SPIE - The International Society for Optical Engineering, Applications of Photonic Technology, 4087, 379-388 (2000).
K. Brown, **X. Bao**, J. Cameron, **L. Chen**, L. McKnight, J. Stears, W. Hickey and R. Cormier	Testing of fibres in an existing networks for high speed system (10Gb/s or greater) compatibility	Proceedings of SPIE - The International Society for Optical Engineering, Applications of Photonic Technology, 4087, 10-17 (2000).
P. Lu, **L. Chen** and **X. Bao**	Principal states of polarization for an optical pulses in presence of PMD and PDL	Proceedings of SPIE - The International Society for Optical Engineering, Applications of Photonic Technology, 4087, 372-378(2000).
A. Brown, M. DeMerchant, **X. Bao** and R. Steffan	Strain monitoring of the Rollinsford bridge using distributed sensing	Proceedings of SPIE - The International Society for Optical Engineering, Applications of Photonic Technology, 4087, 1149-1156 (2000).
D. Wilkins, S. Gupta, **J.E. Cygler**,. **G.P. Raaphorst**	Development of Software to Calculate the Biological Effect of Different Fractionation Schedules in model tumours	Proceedings of XIII International Conference on the Use of Computers in Radiotherapy, p.242-244 Heidelberg, Germany, May 22-25, 2000
D.E. Wilkins, S. Gupta, **J.E. Cygler**, **G.P. Raaphorst**	Calculated biological effect of interruptions in radiotherapy treatment using Gompertzian-Exponential tumor proliferation kinetics and the L-Q model with repair.	Proceedings of the Chicago 2000 World Congress on Medical Physics and Biomedical Engineering, Chicago.
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M. Bayer, O. Stern, **P. Hawrylak**, **S.Fafard**, A. Forchel	Excitonic artificial atoms	Physica Stat. Sol. Proceedings QD2000 Munich.
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P. Hawrylak, M. Bayer, **S. Fafard**, A. Forchel	Excitons and Excitonic complexes in Self-assembled quantum dots	ICPS-2000 Proceedings.
K. Hinzer, M. Bayer, O. Stern, A. Gorbunov, A. Forchel, **P. Hawrylak**, J. Lapointe, **S. Fafard**	Single dot Spectroscopy of multi-excitons in AlInAs/AlGaAs Quantum Dots	ICAPT-2000 SPIE Proceedings.
C. Nì. Allen, J.J. Dubowski, P.G. Piva, **S. Fafard**	Quantum Dot intermixing with thermal and laser annealing	ICAPT-2000 SPIE Proceedings.
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S. Godfrey, **P. Kalyniak**, B. Kamal, M.A. Doncheski, and A. Leike	Discovery and Identification of W' and Z' Bosons at High Energy ee Colliders	Proceedings of the Linear Collider Workshop 2000 - LCWS 2000 October , 2000, Fermi National Accelerator Laboratory
S. Godfrey, **P. Kalyniak**, B. Kamal, M.A. Doncheski, and A. Leike	Discovery and Identification of W' Bosons in $e\gamma \rightarrow \nu$ q +X	Proceedings of the the DPF 2000 Conference, Columbus Ohio, Int. J. Mod. Phys. A.
D. Karlen, **R. Carnegie**, **M. Dixit**, J. Dubeau, **H. Mes**, M. O'Neill, E. Neuheimer, A. Kristofferson, J. Mottershead	Investigation of GEM Space Point Resolution for a TPC Tracker	Proceedings of the Linear Collider Workshop 2000 - LCWS 2000 October , 2000, Fermi National Accelerator Laboratory

C.L. Greenstock	Health Effects and Low Dose Implications	Proc. of the 45th Annual Health Physics Conference, Vol. 1-H, p.11, 2000.
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P. Hawrylak	Optical properties of quantum dots	NATO Advaced Research Workshop, Jaszowiec, Poland, June 1999. NATO Science series 3, vol.81, 319 (Kluwer, 2000)
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M. Li, **M.S. Dixit**, J. Dubeau, and **P.C. Johns**	GEM: A New Detector for Scanned Projection Radiography	World Congress of Medical Physics and Biomedical Engineering, Chicago (26 July 2000). CD-ROM Proceedings files 5690-95716, and 5690-95541.
Guillouzic, S., **L'Heureux, I.** and **Longtin, A.**	Transition rates for stochastic delay differential equations	AIP Proc. 502, Stochastic and Chaotic Dynamics in the Lakes, Ambleside, UK, August 1999 (Amer. Inst. Physics, New York) pp.456-461 (2000).
T.P. Murphy, A. Lawson, M. Kumagai, and **D.G. Rancourt**	Sediment phosphorous release in Lake Biwa	Proceedings of 4th International Symposium on Sediment Quality Assessment (SQA'2000), October 24-27, 2000, Otsu, Japan.

The SNO Collaboration including I. Blevis, F. Dalnoki-Veress, J. Farine, D.R. Grant, **C.K. Hargrove**, **T. Noble**, V.M. Novikov, M. O'Neill, M. Shatkay, C. Shewchuk and **D. Sinclair**	First Neutrino Observations from the SNO Observatory	Proc. Neutrino 2000, Nucl Phys B 91 21.
D. Sinclair	Progress and Prospects for Solar Neutrino Experiments	Proceedings of the Physics in Collisions Conference, Lisbon 2000.
D. Sinclair	First Results From The SNO Detector	Proceedings of the conference on Dark Matter, Heidelberg, 2000.

Other Conference Presentations and Posters in 2000

Author(s)	Title	Conference
X. Bao	Distributed fibre sensing for civil structural applications	ISIS Canada Annual Conference, May 2-5, Montreal, 2000.
I.D. Calder, D. Clark, R. Arès, and G. Hillier	Photoreflectance Spectroscopy of an InP/InGaAs Double Heterostructure Bipolar Transistor Structure,	Exmatec 2000, Heraklion, Greece (2000).
R.K Carnegie	Report from Int. Comm. for Future Accelerators	CAP conference, York University, June 2000.
R. L. Clarke, G. R. ter Haar and I. H. Rivens	An Application of High Intensity Ultrasound in the Treatment of Cancer	Annual congress of the CAP, York University, 6 June, 2000.
D.E. Wilkins, S. Gupta, **J.E. Cygler**, **G.P. Raaphorst**	Calculated biological effect of interruptions in radiotherapy treatment using the Gompertzian-Exponential model of tumor proliferation and the L-Q model with repair	Radiation Research Society 47th Annual Meeting, Albuquerque NM, April 2000
S. Desgreniers	Post-Rocksalt Phase and Compression Parameters of Dense ZnS	American Geophysical Union Spring Meeting, Washington, DC. May 2000.
S. Desgreniers	En Route to the Centre of the Earth: Studying the Physical Properties of Dense Materials	Canadian Undergraduate Physics Conference 2000, Québec, November 2000
M. D'Iorio	Plastic Electronics	Atlantic Undergraduate Physics Conference, Fredericton, February 2000.
M. D'Iorio, Y. Tao, S. Wang, Qingguo Wu, and J.Lavigne	Performance of blue organic light emitting devices based on 7-azaindole benzenes	5th International Conference on Organic Non-linear Optics, 13-16 March 2000, Davos, Switzerland.
Y. Tao, **M. D'Iorio**, A. Donat-Bouillud, J. Lam, M.S. Wong and Z. H. Li	Luminescent and Electronic Properties of End-Substituted Oligo(phenylenevinylene)s	5th International Conference on Organic Nonlinear Optics, 13-16 March 2000, Davos, Switzerland.
M. D'Iorio	Organic Materials as Active Layers in Photonic and Electronic Devices	SIMS Workshop on Neutron Scattering of Soft Materials, June 25-27, 2000.

M. Dixit	Photon Counting Digital Radiography using High Pressure Xenon Detectors	Imaging 2000, Int. Conf. on Imaging Techniques in Particle Physics, Nuclear Physics, Astrophysics, Medicine and Biology, Stockholm Sweden, June 2000.
S. Fafard	Growth and optical properties of Quantum Dots	Canadian Physicist Association, York, June 2000.
S. Fafard	Quantum dot devices	ICAPT, Quebec, June 2000.
M. Bayer, O. Stern, A. Forchel, K. Hinzer, **P. Hawrylak**, J. P. McCaffrey, M. Spanner, Z. R. Wasilewski, **S. Fafard**	Entangling of Quantum States in Vertically Coupled Self-Assembled Quantum Dots with Well-Defined Electronic Shells	QD2000, Munich August 2000.
S. Fafard	Optical Memory Effects in Near-Surface InAs/GaAs Quantum Dots having Sharp Electronic Shells	27th International Symposium on Compound Semiconductors, Monterey, CA, Sept. 2000.
S. Fafard	Growth of Well-defined Nanostructures	6th International Symposium on Advanced Physical Fields, Tsukuba Japan, March 2001.
E. Fortin	Spatially dependent amplification of an excitonic condensate in Cu2O.	EXCON 2000, Osaka, Japan, Aug. 2000.
L. Kulyuk, V. Yu Mirovitskii, S.M. Ostrovsky, A.V. Pali, S.M. Popov, I. Broussel, **E. Fortin**	Radiative Properties of Sulphide Spinels doped with chromium ions.	International Conf. on Laser, Scintillator and Non-linear Optical Materials, Lyon, France, May 2000.
M. Masse, **E. Fortin**	Spatially dependant amplification of a condensate in Cu_2O	CAP conf., York U. June 2000.
S. Godfrey, **P. Kalyniak**, B. Kamal, A. Leike, and M. Doncheski	Discovery and Identification of W' and Z' Bosons at ee Colliders	Pheno 2000 International Symposium, Madison WI, April 2000.
P. Hawrylak	Excitonic artificial atoms in quantum dots	11th International Winterschool on New Developments in Solid State Physics, Mauterndorf, Austria, February 2000.
P. Hawrylak	Quantum dots in intense laser fields: excitonic artificial atoms	International Conference on Atoms, Molecules, and Quantum Dots in Intense Laser Fields, Pisa, June 2000.
P. Hawrylak	Probing many-electron states by absorption/emission in semiconductor nanostructures	NATO Advanced Research Workshop on "Optical properties of semiconductor nanostructures" Wuerzburg, Germany, June 2000.

P. Hawrylak	Excitonic artificial atoms	CERION Workshop Wuerzburg, Germany, July 2000.
P. Hawrylak	Hidden symmetries, decoherence free spaces, and excitonic artificial atoms	3rd Caribbean Workshop on Quantum Mechanics, Particles, and Fields, Havana, Cuba, Dec. 2000
Hodgson, R.J.W.	Particle Size Distribution from Static Light Scattering using Genetic Algorithms	CAP Congress, York University, June, 2000.
Hodgson, R.J.W	Demonstration Software - Function Minimization using Genetic Algorithms	CAP Congress, York University, June, 2000.
Hodgson, R.J.W	Function Minimization with Genetic Algorithms - Demonstration Software.	AAPT Summer Meeting, Guelph University, July 29 - Aug. 2, 2000.
B. Joós and M. Plischke	Rigidity of Diluted Central Force Networks	Symposium no. 8, International Materials Research Congress, Cancun, August 2000.
B. Joós	Realizing the canonical ensemble in highly entropic inhomogeneous materials	CAP Congress, York University, June, 2000.
B. Joós and Z. Zhou	Realizing the canonical ensemble in highly entropic inhomogeneous materials.	APS March Meeting Minneapolis MN, March 2000.
D. Karlen	Future linear e^+e^- colliders	IPP forward planning session, CAP conference, York University, June 2000.
L'Heureux, I.	Modeling the oscillatory zoning in (Ba,Sr)SO4 solid solutions grown from aqueous solutions	Kongsberg Conference (Norway) on Fluids into and out of rocks, May 2000.
L'Heureux, I.	Oscillatory zoning patterns in minerals	Pacifichem Conference (Honolulu), December 2000
A. Longtin	American Physical Society Annual Meeting	Session on Noise and Synchronization in Biological/Medical Systems, Minneapolis, March 2000
A. Longtin	Canadian Mathematical Society "MATH 2000" Meeting	Session on Mathematical Biology, McMaster University, June 2000.
A. Longtin	Gordon Research Conference on Oscillations and Instabilities in Chemical Systems	Roger Williams University, Rhode Island, August 2000.
A. Longtin	Treizieme Entretiens du Centre Jacques Cartier, Symposium Dynamique Nonlineaire et Biologie Mathematique,	Universite de Montreal, October 2000.

Owen, D.G. and **Ng, C.E.**	Potentiation of low dose rate irradiation by camptothecin	47th Annual Radiation Research Society Meeting, Albuquerque, New Mexico, Apr. 2000.
Raaphorst, G.P., **Ng, C.E.** and Smith, D.	Adaptive response to low fractionated doses of radiation may have clinical implications	47th Annual Radiation Research Society Meeting, Albuquerque, New Mexico, Apr. 2000.
Myint, W.K**., Raaphorst, G.P.** and **Ng, C.E.**	Examination of the non-homologous repair process in cisplatin radiosensitization and sublethal damage repair.	47th Annual Radiation Research Society Meeting, Albuquerque, New Mexico, Apr. 2000.
Li, Y.J., Shirazi, F.H., Hollebone, B., **Ng, C.E.** and Goel, R.	Cisplatin-induced nephrotoxicity in MDCK cells	91st Annual Meeting of the American Association for Cancer Research, San Francisco, CA, Mar. 2000.
G.P. Raaphorst	Interactions of cisplatin, hyperthermia and radiation in human tumour cells	7th Asian Conference on Hyperthermia, Chang Chun China, August 2000.
S.C. Malone, J. Szanto, G. Alsbeih, L. Souhami, E. Szumacher, A. Girard, R. Gray, **G.P. Raaphorst**	In vitro radiosensitivity of skin fibroblasts predicts for late neurologic complications following AVM radiosurgery	ASTRO 2000, Boston, October 2000.
G.P. Raaphorst, C.E. Ng and D. Smith	Adaptive response to low fractionated doses of radiation may have clinical implications	47th Annual Radiation Research Society Meeting, Albuquerque, New Mexico, Apr. 2000.
K. Lagarec, **D.G. Rancourt**, S.K. Bose, and R.A. Dunlap	First observation of a composition-controlled low-moment/high-moment transition in the FCC Fe-Ni system: Implications regarding Invar and anti-Invar behaviours	International Symposium on Structure and Dynamics of Heterogeneous Systems, August 28-29, 2000, Duisburg, Germany
D.G. Rancourt	Invar behaviour in Fe-Ni alloys is predominantly a local moment effect arising from the magnetic exchange interactions between high moments	International Symposium on Structure and Dynamics of Heterogeneous Systems, August 28-29, 2000, Duisburg, Germany
D.G. Rancourt	Development of a single-mineral multi-variable geosensor based on the crystal chemistry of biotite	Plenary talk at 41st Mössbauer Spectroscopy Discussion Group Meeting, The Royal Society of Chemistry, September 4-5, 2000, University of Greenwich, UK.
K. Lagarec, **D.G. Rancourt**, S.K. Bose, and R.A. Dunlap	Observation of a composition-controlled low-moment/high-moment transition in the FCC Fe-Ni system: Implications regarding Invar and anti-Invar behaviours	41st Mössbauer Spectroscopy Discussion Group Meeting, The Royal Society of Chemistry, September 4-5, 2000, University of Greenwich, UK.

K. Lagarec and **D.G. Rancourt**	Recoil: Advanced Windows-based spectral analysis and data treatment software for Mössbauer spectroscopy	41st Mössbauer Spectroscopy Discussion Group Meeting, The Royal Society of Chemistry, September 4-5, 2000, University of Greenwich, UK.
Cron G.O., J. Wallace, W.D. Stevens, T. Fortin, B.A. Pappas, F. Kelcz and **G. Santyr**	Quantitative Dynamic Contrast-Enhanced MR Imaging of Rat Tumour: Limitations of Using Changes in T_2* in the Aorta to Measure the Arterial Input Function	Intl. Society of Magnetic Resonance in Medicine, Denver 2000.
McDonald M., A. Cross and **G. Santyr**	Feasibility of a Low-Field MR Imager Using Hyperpolarized ^{129}Xe	World Congress on Medical Physics and Biomedical Engineering, Chicago 2000.
Cross A., D. McPhee, W.D. Stevens, M. McDonald and **G.E. Santyr**	Hyperpolarized Xenon Relaxation Times in Perfluorocarbon Emulsion and Plasma Mixtures	World Congress on Medical Physics and Biomedical Engineering, Chicago 2000.
Cron G.O., J. Wallace, W.D. Stevens, T. Fortin, B.A. Pappas, F. Kelcz and **G. Santyr**	Measurement of the Arterial Input Function Using Changes in T2* in the Aorta for Dynamic Contrast-Enhanced MR Imaging of cerous Lesions in the Rat	World Congress on Medical Physics and Biomedical Engineering, Chicago 2000.
C.K. Ross, J.P. Seuntjens, N.V. Klassen and **K.R. Shortt**	The NRC sealed water calorimeter: correction factors and performance	NPL Workshop on Recent Advances in Calorimetric Absorbed Dose Standards, National Physical Laboratory, Teddington, Middlesex, UK.
K. Shortt, C. Oyarzun, M. Saravi and V. Tovar	Radiation dosimetry comparison between Canada, Chile, Argentina & Mexico	World Congress on Medical Physics and Biomedical Engineering
G. W. Slater, C. Desruisseaux, D. Long. G. Drou	Electrophoresis of DNA-protein hybrid molecules in free-solution: friction, hydrodynamics and polymer properties	Annual congress of the Canadian Association of Physicists, York University, June 2000.
Marc P. Pépin, **G. W. Slater**	Molecular Dynamics study of a stretched polymer in a good solvent	Annual congress of the Canadian Association of Physicists, York University, June 2000.
Justin Boileau, **G. W. Slater**	Diffusion and migration of small macromolecules in disordered systems: An exact numerical approach	Annual congress of the Canadian Association of Physicists, York University, June 2000.
M. P. Pépin, **G. W. Slater**	Time-Dependent Orientational Coupling in Uniaxially Stretched Bimodal Melts: A Molecular Dynamics Study	March Meeting of the American Physical Society, Minneapolis, March 2000.

C. Desruisseaux, D. Long, G. Drouin, **G. W. Slater**	Electrophoresis of Composite Molecular Objects: The Relation between Friction, Charge and Ionic Strength in Free-Solution	March Meeting of the American Physical Society, Minneapolis, March 2000.
F Tessier, M. P. Pépin, **G. W. Slater**	Migration of Long Polyelectrolytes in Structured Microfluidic Channels	March Meeting of the American Physical Society, Minneapolis, March 2000.
J.-F. Mercier, **G. W. Slater**	Diffusion of Hard Spherical Particles in Gel-Like Systems: Reaching the Continuum Limit on a Lattice	March Meeting of the American Physical Society, Minneapolis, March 2000.
G. W. Slater, C. Desruisseaux, G. Drouin	Electrophoresis of DNA-protein complexes in polymer solutions: from free-flow to steric trapping	March Meeting of the American Physical Society, Minneapolis, March 2000.
Chun-Rong Fu and **K. S. Song**	Relaxation of exciton in KBr and NaBr- a molecular dynamics study	Int. Conf. On Defects in Insulating Materials, Johannesburg, April 2000.
K. S. Song and Chun-Rong Fu	Recent Molecular Dynamics Study of Exciton Relaxation in Ionic Halides	Int. Conf. On Excitonic Processes in Condensed Matter, Osaka, August 2000.
Z.M. Stadnik, J. Saida, and A. Inoue	^{57}Fe Mossbauer study of amorphous and icosahedral $Zr_{65}Al_{7.5}Ni_{10}Cu_{7.3}Fe_{0.2}Ag_{10}$	Aperiodic 2000, Nijmegen, the Netherlands, July 4-8, 2000.

Other Presentations in 2000

Speaker(s)	Title	Location
R.K. Carnegie	IPP Director report	IPP AGM, York University, June 2000.
J.E. Cygler	TG-51-A New Dosimetry Protocol for External Beams –Are We Ready to Change?	Radiation Oncology / Physics Rounds, February, 2000.
J.E. Cygler	Brachytherapy at ORCC –Present and Future	Radiation Oncology / Physics Rounds, November 29, 2000.
S. Desgreniers	En route vers le centre de la Terre et autres itinéraires intéressants	Conférence ACP, Départements de physique de l'Université de Trois-Rivières et de Sherbrooke, mars 2000.
M. D'Iorio	L'électronique plastique	Université de Moncton, février 2000.
M. Dixit	Measurement of Spatial Resolution in a GEM with Hexagonal Pads – Update on R & D at Carleton	2nd ECFA/DESY Study on Physics and Detectors for a Linear Electron-Positron Collider, workshop held at Hamburg Germany, September 2000.
M. Dixit	TPC Readout using the GEM	2nd ECFA/DESY Study on Physics and Detectors for a Linear Electron-Positron Collider, workshop held at Padova Italy, May 2000.
S. Fafard	Quantum dot devices with well resolved excited states	Taiwan, Taipei July 2000.
S. Godfrey	Discovery and Identification of W' and Z' Bosons at ee Colliders	Johns Hopkins University, Baltimore MA, March, 2000.
C.L. Greenstock	Tritium Safety Issues at AECL. Combined Electrolysis and Catalytic Exchange Upgrading and Detritiation personnel	Chalk River Laboratories, March 17, 2000.
C.L. Greenstock	Genetic Modification in Agriculture and Horticulture	Horticultural Society, Petawawa, October 17, 2000.
P. Hawrylak	Hidden symmetries and excitonic artificial atoms	Max-Planck Institute for Complex Systems, Dresden, Germany, March 2000

P. Hawrylak	Semiconductor artificial atoms	Wuerzburg University, Germany, May 2000.
P. Hawrylak	Optical probes of many-electron states in semiconductor nanostructures	Humboldt University zu Berlin, Berlin, Germany, May 2000.
P. Hawrylak	Correlated electrons in quantum dots	Regensburg University, Regensburg, Germany, June 2000
P. Hawrylak	Many body effects in optical properties of two-dimensional electron gas	CNRS-Bagneux, Bagneux Paris, France; June 2000.
P. Hawrylak	Quantum dots	Electronische Technische Hohshule (ETH), Zurich,Switzerland, June 2000.
P. Hawrylak	Quantum dots	MacMaster University, Hamilton, Canada, October 2000.
P. Hawrylak	Spin and correlations in quantum dots	Cavendish Laboratory, Cambridge Laboratory Cambridge, UK, November 2000.
R. Hemingway	OPAL celebrates the Standard Model	LEP-Fest, CERN, October 2000.
P. Kalyniak	Discovery and Precision: Some Examples of Complementarity in Particle Physics	McMaster University, March 8, 2000.
D. Karlen	Gems from OPAL: Highlights from a LEP experiment.	Lawrence Berkeley National Laboratory, February 2000.
D. Karlen	Canada Network Status Report	Esnet International meeting, Kyoto, July 2000.
M. Chacron, **A. Longtin** and L. Maler	Model of bursty and non-bursty P-units	Computational in Neural Systems Conference, Bruges, Belgium, July 2000.
B. Doiron, **A. Longtin** and L. Maler	Novel bursting mechanism in pyramidal cells of the electrosensory lateral line lobe	Society for Neuroscience Annual Meeting, New Orleans, November 2000.
A. Longtin, B. Doiron and L. Maler	Dynamics of subtractive and divisive gain control	Memory, delays and multistability in neural systems, Montreal, October 2000.
G.P. Raaphorst	Induced radiation resistance: A myth or reality	OMPI seminar. Carleton Clinic, February, 2000.

G.P. Raaphorst	Radiation and cisplatin in cancer therapy; Radiosensitization and adaptive response	Henan Tumour Hospital, Zhen Zhou China, August 2000.
G.P. Raaphorst	Practice of radiotherapy at the Ottawa Regional Cancer Center	Henan Tumour Hospital, Zhen Zhou China, August 2000
G.P. Raaphorst	Current radiobiology research and its relationship to radiation oncology	Radiation Oncology Rounds, ORCC, September 2000.
D.G. Rancourt	Why are lake sediments important, on both local and global scales: What do we know about how they work and how can we know more?	Department of Physics and Department of Geography, University of Ottawa, March, 2000.
D.G. Rancourt	Mechanisms and crystal chemistry of oxidation in annite	Steacie Institute for Molecular Science, NRC, Ottawa, May, 2000.
D.G. Rancourt	Development of a single-mineral multi-variable geosensor based on the crystal chemistry of biotite	Faculty of Earth Sciences, Utretch University, The Netherlands, September, 2000.
G. Santyr	Hyperpolarized Xenon: A Novel Contrast Agent for MR Imaging, Carleton	University Spring Conference 2000, Opinicon Lodge, May 2000.
K.R. Shortt	The issue of accuracy in reference dosimetry	Ottawa Medical Physics Institute, December, 2000.
G.W. Slater	An “Exact” numerical approach to calculating diffusion coefficients in chemistry and biology	Department of Chemistry, University of Wisconsin, Madison, Nov 2000.
G.W. Slater	Nouvelle méthode exacte pour calculer des coefficients de diffusion: Applications pour l’électrophorèse des protéines et la diffusion sur les biomembranes	l’Institut de Physique Nucléaire - CNRS, Université de Paris XI, Orsay, juillet 2000.
G.W. Slater	The physics of the electrophoretic separation of DNA-protein complexes: Towards an ultra-fast gel-free capillary sequencing system	State University of New York at Stony Brook, May 2000.
G.W. Slater	The physics of the electrophoretic separation of DNA-protein complexes: Towards an ultra-fast gel-free capillary sequencing system	Presented at the Brooklyn Polytechnic University, May 2000.

Technical Reports (unpublished) in 2000

Author(s)	Report
C.L. Greenstock	Group Designation of Employees. AECL Radiation Protection Manual RPM-3.1, R1, 2000.
C.L. Greenstock	Dose Control Points. AECL Radiation Protection Manual RPM-5.4, R1, 2000.
C.L. Greenstock	Nuclear Energy Workers Status. AECL Radiation Protection Report RPM-5.6, R1, 2000.
C.L. Greenstock	Radiological Zoning Plan for the Waste Treatment Centre. AECL Report ZP-11, R2, 2000.
C.L. Greenstock	Radiological Zoning Plan for the Buildings Involving Heavy Water Collection, Processing and Storage. AECL Report ZP-19, R2, 2000.
P.J. Allisy-Roberts, D.T. Burns, **K.R. Shortt**, C.K. Ross and J.P. Seuntjens	Comparison of the standards of absorbed dose to water of the NRC, Canada and the BIPM for 60Co γ rays, Rapport BIPM-99/13 (reviewed and published, June, 2000).
P.J. Allisy-Roberts, D.T. Burns, **K.R. Shortt** and C.K. Ross	Comparison of the air kerma standards of the NRC and the BIPM for 60Co γ rays, Rapport BIPM-99/12 (reviewed and published, October, 2000).

Members of the Institute in 2000

J.C. Armitage	High Energy Physics, Instrumentation	(C)
Xiaoyi Bao	Fiber Optics	(O)
Ian Calder	Semiconductor Physics	(O- Adjunct)
Ian Cameron	Medical Physics	(C-Adjunct)
R.K. Carnegie	Experimental High Energy Physics	(C)
Sylvain Charbonneau	Semiconductor Physics	(O-Adjunct)
Liang Chen	Photonics	(O)
R.L. Clarke	Medical Physics	(C-Adjunct)
Joanna Cygler	Medical Physics	(C-Adjunct)
Robert deKemp	Medical Physics	(C-Adjunct)
Serge Desgreniers	High Pressure Physics	(O)
Marie D'Iorio	Semiconductor Physics	(O-Adjunct)
Madhu Dixit	Experimental High Energy Physics	(C-Adjunct)
K.W. Edwards	Experimental High Energy Physics	(C)
P.G. Estabrooks	Experimental High Energy Physics	(C-Adjunct)
Simon Fafard	Seminconductor Physics	(O-Adjunct)
Emery Fortin	Semiconductor Physics	(O)
L.H. Gerig	Medical Physics	(C-Adjunct)
Stephen Godfrey	Theoretical Particle Physics	(C)
C.L. Greenstock	Medical Physics	(C-Adjunct)
C.K. Hargrove	Experimental High Energy Physics	(C-Adjunct)
Pawel Hawrylak	Theoretical Condensed Matter	(O-Adjunct)
R.J. Hemingway	Experimental High Energy Physics	(C-Adjunct)
Brian Hird	Ion Physics	(O-Adjunct)
R.J.W. Hodgson	Condensed Matter Theory	(O)
B.J. Jarosz	Medical Physics	(C)

P.C. Johns	Medical Physics	(C)
Béla Joós	Theoretical Condensed Matter	(O)
Pat Kalyniak	Theoretical Particle Physics	(C)
Dean Karlen	Experimental High Energy Physics	(C)
Gilles Lamarche	Low Temperature Physics	(O-Adjunct)
M.A.R. LeBlanc	Superconductivity	(O)
Ivan L'Heureux	Non-linear Dynamics	(O)
B.A. Logan	Nuclear Physics	(O)
André Longtin	Nonlinear Dynamics, Biophysics	(O)
M.J. Losty	Experimental High Energy Physics	(C-Adjunct)
Barry McKee	Medical Physics	(C-Adjunct)
H.J.A.F. Mes	Experimental High Energy Physics	(C-Adjunct)
Cheng Ng	Medical Physics	(C-Adjunct)
Tony Noble	Experimental High Energy Physics	(C-Adjunct)
F.G. Oakham	Experimental High Energy Physics	(C)
Peter Piercy	Surface Physics	(O)
G.P. Raaphorst	Medical Physics	(C-Adjunct)
D.G. Rancourt	Earth and Planetary Materials	(O)
D.W.O. Rogers	Medical Physics	(C-Adjunct)
William Romo	Theoretical Nuclear and Particle Physics	(C)
Giles Santyr	Medical Physics	(C)
Ken Shortt	Medical Physics	(C-Adjunct)
W.D. Sinclair	Solar Neutrino Physics	(C)
G.W. Slater	Polymer Physics	(O)
A.K.S. Song	Condensed Matter Theory	(O)
Z.M. Stadnik	Experimental Condensed Matter	(O)
M.K. Sundaresan	Theoretical Particle Physics	(C)
John Tse	Computational Physics	(O-Adjunct)
Y.P. Varshni	Theoretical Solid State, Astrophysics	(O)

P.J.S. Watson	Theoretical Particle Physics	(C)
Robyn Williams	Semiconductor Physics	(O-Adjunct)
J.C. Woolley	Semiconductor Physics	(O)
A. Waker	Medical Physics	(C- Adjunct)

Graduate Students at the Institute in 2000

Student	Registered	Supervisor(s)	Completed
Allen, Claudine	(O) MSc Jan-00	Fafard	
Al-Qadi, Khalid	(O) MSc Jan-97	Stadnik	
Bates, Bryce	(C) MSc Sep-99	Godfrey	September 2000
Belanger, Guillaume	(C) MSc Sep-00	Oakham	
Boileau, Justin	(O) MSc May-99	Slater	
Bouhraoua, Naima	(C) MSc Sep-00	Godfrey	withdrew Dec. 00
Cai, Aiguo	(O) MSc May-98	Piercy	September 2000
Carlone, Marco	(C) PhD Sep-00	Raaphorst	
Chacron, Maurice	(O) PhD Sep-98	Longtin	
Crisan, Simona	(O) MSc Sep-00	Slater	
Dalnoki-Veress, Ferenc	(C) PhD Sep-95	Hargrove	
Diego, Bueti	(O) MSc Sep-00	Longtin	
Doiron, Brent	(O) MSc May-00	Longtin	
Donkers, Michael	(C) PhD Sep-97	Hemingway	
Evans, James	(O) MSc Sep-98	Rancourt, Tse	
Feagan, Carey	(C) MSc Sep-99	Ng	
Ferrier, Graham	(O) MSc Sep-00	Bao	
Fournier, Luc	(O) MSc Sep-00	Joós	
Gao, Zhanrong	(C) MSc Sep-99	Gerig	
Gauthier, Yvan	(C) MSc Jan-98	Cameron	January 2000
Gorjanc, Timothy	(O) PhD Jan-99	D'Iorio	
Grant, Darren	(C) PhD Sep-98	Noble	
Guillouzic, Steve	(O) PhD Jan-96	L'Heureux, Longtin	December 2000
Hadjifaradji, Saeed	(O) PhD Jan-92	Marchand	January 2000
Haysom, Joan	(O) PhD Sep-97	Charbonneau	
Hinzer, Karin	(O) PhD Sep-98	Charbonneau, Fafard	

Hou, Weimin	(O) MSc May-00	Desgreniers	
Hubert, Sylvain	(O) PhD Sep-96	Slater	
Jelveh, Salomeh	(C) MSc Sep-99	Jarosz	
Kalach, Nina	(C) MSc Sep-99	Rogers	
Katsev, Sergei	(O) PhD May-99	L'Heureux	
Knight, Gary	(O) PhD Sep-00	D'Iorio, Hodgson	
Korkusinski, Marek	(O) MSc Sep-00	Hawrylak	
Labrie, Josée	(O) MSc Sep-98	Slater	
Lagarec, Ken	(O) PhD Jan-96	Rancourt	
Lam, Jennifer	(O) PhD Sep-97	D'Iorio	
Leclair, Robert	(C) PhD Sep-94	Johns	August 2000
Li, Mei	(C) MSc Sep-98	Johns, Dixit	August 2000
Li, Miao	(C) PhD Sep-00	Godfrey	withdrew Dec. 00
Li, Ming Yu	(O) MSc Sep-96	Stadnik	June 2000
Lu, Ping	(O) PhD Sep-00	Bao, Chen	
Masse, Mathieu	(O) MSc May-99	Fortin	
McCormick, Laurette	(O) MSc May-00	Slater	
McDonald, Mark	(C) MSc Sep-98	Santyr	
Mercier, Jean-Francois	(O) PhD May-99	Slater	
Mercier, Patrick	(O) PhD Sep-96	Rancourt	
Merizzi, Andre	(O) MSc Sep-00	Fortin	
Myint, Kenji	(C) MSc Sep-98	Raaphorst	
Niedbala, Malgorzata	(C) PhD Jan-99	Raaphorst	
Nixon, Grant	(O) PhD Sep-94	Slater	
Nkongchu, Ken	(C) MSc Sep-99	Santyr	
Olariu, Elena	(C) MSc Sep-00	Cameron	
Ouellette, Guy	(O) PhD May-00	Fafard	wthdrew Sep. 00
Owen, Daron	(C) MSc Sep-97	Ng	August 2000
Parra Robles, Juan	(C) PhD Jan-00	Santyr	
Ramsay, Jamie	(O) MSc Sep-00	Williams	

Rezeq, Moh'd	(O) PhD May-99	LeBlanc	
Riel, Bruno	(O) PhD Sep-97	Piercy	
Simionescu, Razvan	(C) PhD Sep-00	Santyr, Cameron	
Smith, Debbie	(C) MSc Sep-97	Raaphorst	August 2000
St-Hilaire, Martin	(O) MSc Jan-98	Longtin	
Tessier, Frederic	(O) PhD Sep-99	Slater	
Towers, Sherry	(C) PhD Sep-93	Karlen	January 2000
Valdes, Marcelo	(C) MSc Sep-97	Sundaresan	
Waller, David	(C) PhD Sep-97	Karlen	
Wassenaar, Richard	(C) MSc Sep-99	McKee	
Wismayer, Matthew	(C) MSc Sep-99	Johns	
Zeng, Xiaodeng	(O) MSc Sep-00	Bao	

Research Associates at the Institute in 2000

Name	Period	Supervisor(s) or Group
Albert Cross		G. Santyr
Claude Desruisseaux	1999 -	G.W. Slater
Jacques Dubeau	January 1995 -	M. Dixit
Jacques Farine	January 1998 -	D. Sinclair
Chao Huang	January – December 2000	X. Bao and L. Chen
Tom Junk	April 1998 -	OPAL/Carleton
Basim Kamal	October 1998 – October 2000	S. Godfrey and P. Kalyniak
Mohsen Khakzad	September 2000 -	ATLAS/Carleton
Peter Krieger		ATLAS/Carleton
Carlo Laing		A. Longtin
Ilan Levine	June 1997 -	D. Sinclair
Andrey Nossov		G. Santyr
Marc Pépin	1998 – August 2000	G.W. Slater
Nikolai Romanenko	October 2000 -	S. Godfrey and P. Kalyniak
Kirsten Sachs	April 2000 -	OPAL/Carleton
N. Starinski		D. Sinclair
Sherry Towers	February – August 2000	OPAL/Carleton
An Wang	October – December 2000.	X. Bao
Julia Wallace		G. Santyr
John White	May 1998 – October 2000	OPAL/Carleton
Hongyan Zhou	1997 -	G.W. Slater