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Born in Toronto, married, 4 children born 1978 - 1992

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Work Experience and Responsibilities

- 2015 – Distinguished Research Professor, Carleton University (*i.e.*, continuing to supervise students and do research post-retirement).
- 2003 – 2014: Canada Research Chair in Medical Physics and Professor in the Physics Department at Carleton University.
- 1985 – 2003: Group leader of the Ionizing Radiation Standards group at NRC. The group fluctuated between 14 and 23 people (depending on grants, numbers of research associates, graduate students etc). The group is responsible for Canada's primary measurement standards for ionizing radiation. My personal research involved the development of Monte Carlo techniques for simulating the transport of electrons and photons in materials, the application of these and other techniques to problems in medical physics and radiation dosimetry and the development of protocols for clinical dosimetry.
- 1979–84: Coordinator of the Radiation Dosimetry Group of NRC. This 10 person group had responsibility for Canada's primary radiation measurement standards for X-rays and ^{60}Co and worked on the provision of accurate measurement techniques and standards for electron and photon beams from linear accelerators.
- 1980–89,95–99: Adviser to the President of NRC on Atomic Energy Control Board (now CNSC) matters. Involves reviewing AECEB documentation and preparing briefing notes before each Board meeting for the president who is, *ex-officio*, one of the five members of the Board.
- 1979–83: Member of the NRC Physics Division Steering Committee. This 5 person group met 3 or 4 times a year to advise the Director of the Physics Division on policy matters concerning the division (about 250 people).
- 1979: Seconded for 6 months to the Renewable Energy Project of the NRC and worked as an energy analyst. This involved monitoring work on energy economics, reviewing proposed renewable energy projects to be funded by NRC and doing research on the energy required to build a solar energy heating system.
- 1975/76: Sessional lecturer in the Physics Dept, Carleton University.
- 1973–79: Research officer at NRC working on neutron dosimetry.
- 1972–73: NRC Postdoctoral Fellow at the Oxford Nuclear Physics Laboratory. I worked on the nuclear structure of light nuclei, experimentally using gamma-ray spectroscopy and theoretically using large shell model computer codes.
- 1968–71: Graduate student at the U of Toronto. In my teaching I was involved in the development of two different courses on physics for Arts students.

Professional Service and Outreach

- 2023 – Member of AAPM’s Ad Hoc Advisory Committee on Journal Vision.
- 2020 – Member of AAPM’s TG 351 - Clinical reference dosimetry in MR-guided radiotherapy.
- 2016 – Commissioner of International Commission on Radiation Units and Measurements (ICRU).
- 2019 – 2021: Member of the AAPM’s Journals Business Management Committee.
- 2015 – 2016 Member of AAPM’s Ad Hoc Committee on Unifying Publication Platforms.
- 2014 – 2019 Member of the AAPM’s Awards and Honors Committee.
- 2014 – 2018 Co-chair of AAPM’s Task Group on Guidelines for Publication of Monte Carlo Studies.
- 2014: Member of revamped Editorial Board of the journal Medical Physics.
- 2013: Member of the AAPM’s Task Group 242 to seek out and recommended two new (deputy) editors for the journal Medical Physics.
- 2012: Member of the AAPM’s Ad-hoc Journal Editor Search Committee which sought out and recommended a new editor-in-chief for the journal Medical Physics.
- 2012–2014 Member of AAPM’s TG-195 on Monte Carlo Reference Data Sets for Imaging Research
- 2011–: Member of AAPM’s Working Group on Future Research and Academic Medical Physics
- 2011: Lecturer and academic director of IAEA workshop on Monte Carlo Radiation Transport and Associated Data Needs for Medical Applications, 17 - 28 October 2011, Trieste, Italy at the Abdus Salam International Centre for Theoretical Physics.
- 2009–2011: Member of the Natural Sciences and Engineering Research Council of Canada’s (NSERC’s) Physics Evaluation Group which is responsible for peer review of all physics (except sub-atomic physics) Discovery Grants and RTI grants.
- 2009–2011: Member of the AAPM’s Science Council.
- 2008–2009: Co-director with Joanna Cygler, of the AAPM’s 2009 Summer School on Clinical Dosimetry Measurements for Radiotherapy, held in Colorado Springs, Co, June 20-25. Edited the associated 1112 page book.
- 2008–2010: Member of COMP’s founding Science and Education Committee
- 2008: Member of review team for Program Review of the Undergraduate Medical Radiation Sciences Program at McMaster University/Mohawk College
- 2007–: Member of AAPM’s Low Energy Brachytherapy Source Dosimetry Work Group which morphed into the Working Group on Brachytherapy Dosimetry.
- 2007–2012: Member of AAPM’s TG-129 on Eye Plaque Dosimetry
- 2006–2012: Member of AAPM’s Working Group on “Review and Extension of beam quality conversion factors for TG-51 Protocol”

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Professional service and outreach (cont)

- 2006–: Member of the IAEA’s International Advisory Committee on “Phase-space database for external beam radiotherapy”.
- 2006–2014: Member of International Advisory Board of journal *Physics in Medicine and Biology*
- 2006–2015: Ottawa Medical Physics Institute’s Academic Officer (*i.e.*, academic program director for CAMPEP graduate program)
- 2005: Consultant to IAEA on the creation of a “Phase-space database for external beam radiotherapy” (Vienna, 12-14 December 2005)
- 2005–2010: Founding Chair of the COMP Gold Medal Committee which defined the criteria and rules regarding COMP’s Gold Medal and recommends annual awardees.
- 2005 – 2013 Deputy Editor of the journal *Medical Physics* (one of two)
- 2004: Member of the American Association of Physicists in Medicine’s (AAPM) Ad-hoc Journal Editor Search Committee which sought out and recommended a new editor for the journal *Medical Physics*.
- 2003–2007: Member of the AAPM’s Task Group 105 on Monte Carlo Treatment Planning.
- 2002–07: Member of the AAPM’s Journal Business Management Committee which oversees the business side of the association’s journal, *Medical Physics* (an AIP journal, the most highly cited journal in our field).
- 2001–05: Member of the AAPM’s Task Group 70 on electron beam dosimetry.
- 2001–07: Member of the AAPM’s Calibration Laboratory Accreditation Committee which accredits the secondary dosimetry laboratories in the US (ADCLs, Accredited Dosimetry Calibration Laboratories).
- 2000–03: Member of the AAPM’s Research Committee.
- 1999–2000: Member of the Canadian Organization of Medical Physicists (COMP) committee on the adoption of the TG–51 protocol for use in Canadian cancer clinics.
- 1999–2001: Elected as At-Large Member of AAPM Board of Directors.
- 1995–: Director and main lecturer at annual course on the use of the BEAM system of codes for Monte Carlo simulation of radiotherapy accelerators and dose calculations in patients. An average of 20 students pay \$3500 each to attend the 4 day course.
- 1995–2000: Member, Atomic Energy Control Board’s (AECB) Advisory Committee on Radiation Protection (ACRP).
- 1995–97: Member, Publications Committee of the AAPM.
- 1994–97: Founding Chair, COMP’s Awards Committee which established the Young Investigators competition at the annual meeting (past-chair 1997).

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Professional service and outreach (cont)

- 1991–93: Consultant to and co-author of the AAPM’s task group (TG-39) on the Calibration of Parallel Plate Ion Chambers.
- 1990–99: Member of task group and co-author of the AAPM’s TG-51 protocol for clinical reference dosimetry in radiotherapy.
- 1990–94: Lectured graduate physics course at Carleton and Secretary (until 1991) of the Medical Physics Organized Research Unit (now the Ottawa Medical Physics Institute).
- 1988–97: Member (for 3 terms) of the AAPM’s Radiation Therapy Committee which commissions task groups to develop protocols and Codes of Practice for clinical medical physics and then approves the task group reports.
- 1987–97: Member of the International Commission on Radiation Units and Measurement’s (ICRU) report committee on “Absorbed Dose Standards for Photon Irradiation and Their Dissemination” (resigned over slow progress).
- 1987: Co-director of 8th Course of Int’l School of Radiation Damage and Protection on “*Monte Carlo Transport of Electrons and Photons Below 50 MeV*” held at Ettore Majorana Centre for Scientific Culture in Erice, Italy and technical co-editor of ensuing book.
- 1987–03: Canadian representative on the Comité Consultatif pour les Étalons de Mesure des Rayonnements Ionisants (Section I, Rayons X et γ , électrons) of the Bureau International des Poids et Mesures (renamed to Comité consultatif des rayonnements in 1999).
- 1987 – 2013 Associate Editor and member of the Editorial Board of Medical Physics, an official journal of the AAPM and COMP.
- 1986–2003: Adjunct Professor, Physics Department of Carleton University, lecturing graduate course in radiotherapy physics and supervising graduate students.
- 1986–: Organized and lectured at 15 four-day courses on using EGS4 and now EGSnrc. The courses have been held at NRC(6), NRC with Carleton(1), the IASPM in Seattle(1), the NPL in London(3), the Lanzl Institute in Seattle(1) and in Capri, Italy(1).
- 1984–86: Member of Task Group 21 of the AAPM’s Radiation Therapy Committee which updated the AAPM’s protocol for dosimetry in linear accelerator beams.
- 1981–85: On the executive of the Division of Medical Physics of the Canadian Association of Physicists, including Chairperson, 1983/84.
- 1982–83: Member AECB Working Group on Reference Standards for External Radiation.
- 1974–77: Member of the CAP’s Physics and Society Committee.
- 1974–77: Member (chairman for 2 years) of the CAP’s Placement Service Committee.
- 1970–71: Member of the founding Council of SCITEC (the forerunner of the Association for the Advancement of Science in Canada).

1968–70: Chairman of Canadian Concerned Scientists, a staff-student organization at the U of T to promote the socially beneficial use of science in society.

1967–68: President, U of T Undergraduate Maths and Physics Society.

Awards and Honours

- Victor Malkov, whose PhD I was supervising, won first place in the Young Investigators Symposium at the 2017 COMP Meeting in Ottawa for a paper which we co-authored.
- 2014 Failla Award of the Radiological and Medical Physics Society of New York (RAMPS) for distinguished lifetime achievement in medical physics.
- 2013 Selected by the International Organization of Medical Physicists as one of “50 Outstanding Medical Physicists: 1963-2013” as part of their 50-th anniversary celebration (see p 14 of [Medical Physics World](#))
- 2013 Elected a [Fellow of the Royal Society of Canada](#)
- 2012 Awarded the Gold Medal of the Canadian Organization of Medical Physicists, COMP’s ‘highest award’ which recognizes a member ‘who has had an outstanding career and has made a significant contribution to the field of medical physics in Canada.’
- 2012 Selected as one of the inaugural Fellows of COMP.
- Elsayed Ali, whose PhD I was supervising, won second place in the Young Investigators Symposium at the 2012 COMP Meeting in Halifax for a paper which I co-authored.
- 2011 Carleton University Graduate Mentoring Award which recognizes faculty members who have made outstanding contributions to the supervision and research mentoring of graduate students. Nominations are made by graduate students.
- 2011 Farrington–Daniels Award of the American Association of Physicists in Medicine (AAPM) for co-authoring with my student Bryan Muir the “best article on radiation dosimetry” in the journal Medical Physics during 2010 (Monte Carlo calculations of k_Q , the beam quality conversion factor).
- 2011 Awarded a Carleton University Research Achievement Award which provides teaching relief to support research.
- Awarded the 2010 William D Coolidge Gold Medal Award of the AAPM. “The AAPM’s highest honor is presented to a member who has exhibited a distinguished career in medical physics, and who has exerted a significant impact on the practice of medical physics.”, July 19, 2010.
- 2009 Lifetime Achievement Award of the Upstate New York Association of Physicists in Medicine “In recognition of outstanding contributions to the advancement of medical physics”, Nov 18, 2009
- 2009 Awarded a plaque “in recognition of his outstanding contributions on Monte Carlo simulation in Medical Physics” at MCTP2009: The Second European Workshop on Monte Carlo Treatment Planning held in Cardiff, Wales, Oct 19-21.

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Awards and Honours, cont

- 2007 Farrington–Daniels Award of the AAPM for co-authoring with my student Dan La Russa the “best article on radiation dosimetry” in the journal Medical Physics during 2006 (An EGSnrc investigation of the P_{tp} correction factor for ion chambers in kilovoltage x-rays).
- 2006 winner of informal Canadian medical physics “Citation Award 2005” (Interactions, 52 #3 (2006) 92) for the Canadian medical physics paper cited most often in the 10 years since publication in 1995. “It is one of the most cited Canadian medical physics papers ever published”.
- 2004 gave the Cameron Symposium lecture at the University of Wisconsin in Madison, Sept 13, 2004
- 2003 Farrington–Daniels Award of the American Association of Physicists in Medicine (AAPM) for co-authoring with my student Daryoush Sheikh-Bagheri, the “best article on radiation dosimetry” in the journal Medical Physics during 2002 (Sensitivity of megavoltage photon beam Monte Carlo simulations to electron beam parameters).
- 2001 FPTT Team Award for technology transfer from the federal government (Federal Partners in Technology Transfer) for work on licensing VMC++ to MDS Nordion.
- 1999 Farrington–Daniels Award of the AAPM for authoring the “best article on radiation dosimetry” in the journal Medical Physics during 1998 (A New approach to electron-beam reference dosimetry).
- Honourable Mention for 1999 Sylvia Fedoruk Prize in Medical Physics awarded by COMP for authoring the “(second)best” Canadian paper in the field of medical physics in 1998 (A New approach to electron-beam reference dosimetry).
- Miller MacPherson, whose PhD I was co-supervising, took third place in the Young Investigators Symposium at the 1998 AAPM Meeting for a paper which I co-authored.
- Honourable Mention for 1998 Sylvia Fedoruk Prize in Medical Physics awarded by the Canadian Organization of Medical Physicists (COMP) for co-authoring the “(second)best” Canadian medical physics paper in 1997 (Accurate characterization of Monte Carlo calculated electron beams..).
- 1997, elected Fellow of the AAPM “in recognition of distinguished contributions to the field of Medical Physics”. The only previous Canadian Fellows were Harold Johns, Jack Cunningham and Ervin Podgorsak.
- Miller MacPherson, whose PhD I was co-supervising, took first place in the Young Investigators Symposium at the 1996 COMP Meeting for a paper which I co-authored.
- 1994 NRC “Outstanding Achievement” team award with Alex Bielajew for work with the EGS4 code.

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Awards and Honours, cont

- 1994 Landauer Memorial Lectureship awarded jointly by the Bay area chapters of the Health Physics Society and AAPM. “Awarded for distinguished contribution to the field of Radiological Physics and Radiation Health Protection.”
- George Ding, whose PhD I was supervising, took third place in the Young Investigators Symposium at the 1994 COMP Meeting for a paper we co-authored.
- Honourable Mention for 1993 Sylvia Fedoruk Prize in Medical Physics awarded by COMP for authoring the “(second)best” Canadian paper in the field of medical physics in 1992 (Calibration of Parallel-Plate Ion Chambers).
- Honourable Mention for 1992 Sylvia Fedoruk Prize in Medical Physics awarded for co-authoring the “(second)best” Canadian paper in the field of medical physics in 1991 (Angular distribution of bremsstrahlung ...).
- 1991 Farrington–Daniels Award of the AAPM for co-authoring the “best article on radiation dosimetry” in the journal Medical Physics during 1990 (Forward directed bremsstrahlung of 10 – 30 MeV electrons incident on thick targets of Al and Pb) .
- CAP’s 1989 Sylvia Fedoruk Prize in Medical Physics awarded for co-authoring the “best” Canadian paper in the field of medical physics in 1988 (Generation of energy deposition kernels using the EGS Monte Carlo code) .
- Bruce Faddegon, whose PhD I was supervising, took second place in the Young Investigators Symposium at the 1989 AAPM Meeting for a paper we co-authored.

Peer Reviewed Grants Held

2014–19 NSERC Discovery Grant, \$36K/y.

2010–17 Canada Research Chair in Medical Physics at Carleton University, \$1.4M. Finished on retirement, Dec 31, 2014.

2009–14 NSERC Discovery Grant, \$69K/y

2006–08 CFI/OIT funding for Carleton Laboratory for Radiotherapy Physics, \$328K.

2003–10 Canada Research Chair in Medical Physics at Carleton University, \$1.4M.

2004–08 NSERC Discovery Grant, \$32K/y

1997–01: Co-investigator of an NIH grant on “Heterogeneity Corrections in Brachytherapy”. The P.I. was Jeffrey Williamson of the University of Washington at St Louis. My group’s portion of the grant was \$250K.

1996–99: Principal investigator on \$534K grant on “Improved photon beam and ^{192}Ir clinical dosimetry”, from the U.S. NIH

1993–96: Co-principal investigator with Rock Mackie on \$1.3M grant on Electron Beam Dose Planning Using Monte Carlo Simulation from the U.S. NIH

1992–94: NSERC grant of \$10,000/year to fund graduate students.

1990–93: Co-principal investigator with Rock Mackie of the University of Wisconsin on \$1.1M grant on Electron Beam Dose Planning Using Monte Carlo Simulation from the U.S. NIH (National Institutes of Health).

1989–91: NSERC grant of \$12,500/year to fund graduate students at Carleton University.

1986–88: NSERC grant of \$11,500/year to fund graduate students at Carleton University.

Fund-raising from Courses

- 2005/06/07/09 Helped organize and lectured at joint Carleton University/NRC courses on BEAM/EGSnrc with \$57K revenue to Carleton.
- 2005 Lectured/helped organize 2 BEAM courses sponsored by the Australian Government in Sydney with a net revenue to Carleton University of \$74K.
- 2004 Organized a joint Carleton University/NRC BEAM course with \$25K revenue to Carleton.
- From 1996 to 2002 I ran 7 BEAM courses at NRC with a total revenue from tuition of about \$500K (\approx 20 students/year at \$3,500 each for 3.5 days).
- From 1986 to 2003 I ran 7 EGS courses at NRC with a total revenue from tuition of about \$170K.

Industrial Support

This does not include income from licensing agreements for EGS and BEAM to be used commercially (totalling about \$152K before 2004).

- TomoTherapy untied support for CLRP, \$26K, 2004-2005
- MDS Nordion, untied support for CLRP, \$20K, 2004-2005
- Varian contract re BrachyDose development, \$38.5K, 2005 -2007
- Nucletron untied support for CLRP, \$20K, 2008

Graduate Students Supervised

Certifications denoted by: FCCPM: Fellow of the CCPM; MCCPM: Member of the CCPM; ABR: American Board of Radiology.

- 1986–90: Bruce Faddegon, PhD from Carleton University, now retired Professor, Department of Radiation Oncology, UCSF. FCCPM, FAAPM.
- 1991–93: Jiansu Wei, PhD student at Carleton University (passed away of liver failure, March 1993).
- 1991–95: George Ding, PhD from Carleton University, Director of Medical Physics, and Full Professor at Vanderbilt University. FCCPM, FAAPM.
- 1992: Andrew Weber, A PhD student at Carleton University (withdrew for personal reasons, Sept 1992), last known at Nortel networks.
- 1993–98: Miller MacPherson, PhD from Carleton University (main supervisor, Carl Ross), now Head of Clinical Physics at The Ottawa Hospital Cancer Clinic: FCCPM
- 1993–98: Geoff Zhang, PhD from Carleton University, now a Professor/clinical physicist at the Moffitt Cancer Center, Tampa , FL: ABR
- 1993–99: Daryoush Sheikh-Bagheri, PhD from Carleton University, Prior to his untimely death in 2021 was a senior medical physicist at Johns Hopkins University: ABR
- 1999–2001: Nina Kalach, MSc from Carleton University, now a clinical physicist in Connecticut: MCCPM
- 2001–05: Lesley Buckley, PhD from Carleton University, now a Medical Physicist at The Ottawa Hospital Cancer Centre: MCCPM
- 2003–06: Zdenko Sego, MSc from Carleton University, working in the software industry in Ottawa.
- 2004–06: Randle Taylor, MSc from Carleton University who worked as a research assistant in my lab until 2008. Consultant.
- 2004–09: Daniel La Russa, PhD in Sept 2009 an MSc/PhD student at Carleton University, now a medical physicist at The Ottawa Hospital Cancer Centre and co-founder of Realize Medical Inc. MCCPM.
- 2005–07: Elsayed Ali, MSc in Sept 2007.
- 2005–09: Lilie Wang, PhD in April 2009. Now a Medical Physicist at Vanderbilt University.
- 2007– 2012: Elsayed Ali, a PhD student at Carleton University. Winner of the University Medal for his PhD work. Now a Medical Physicist at TOHCC. MCCPM.
- 2008– 2013: Bryan Muir, an MSc student at Carleton University who fast tracked into the PhD program. Winner of a Senate Medal for his PhD work. Now a research scientist at NRC.

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Graduate Students Supervised (cont)

- 2008–2013: Justin Sutherland, a PhD student at Carleton University (co-supervised for 3 years with Rowan Thomson). Now a clinical physicist at TOHCC and co-founder of Realize Medical Inc.
- 2012 – 2014 Leila Lukhumaidze, an MSc student at Carleton University working as a Medical Physics Associate, Sunnybrook Clinic, Toronto and working on a PhD.
- 2013 Cristiano Queiroz Melo dos Reis, a visiting PhD student from Department of Physics, University of Sao Paulo - Brazil. Now a physics resident in London Ontario.
- 2013 – 2015 Nima Sherafati, an MSc student at Carleton University transferred to a PhD in experimental particle physics at Carleton.
- 2016 Andy Luis Romero, an MSc student at the Higher Institute of Technologies and Applied Sciences (INSTEC), Havana, Cuba, winner of an Emerging Leaders in the Americas Program (ELAP) scholarship to visit Carleton.
- 2013 – 2017 Victor Malkov, an MSc student who fast tracked to PhD in 2014 at Carleton University. Winner of a Senate Medal for his PhD work. Post-doc at Utrecht Medical Centre to Sept 2018 followed by medical physics residency and then on staff at the Princess Margaret Hospital. Currently at Mayo Clinic, Rochester MN.

Externally Funded Visitors who have worked with me

- Carlos Malamut, Nov 1989 – Feb 1990: from the Brazilian Institute of Radiation Protection and Dosimetry.
- Antti Kosunen, Sept 1990 – Sept 1991: from the Finnish Radiation and Nuclear Safety Authority (STUK) now Head of STUK's Radiation Metrology Laboratory.
- Ahmed Meghizifene, Oct 1991 – Jan 1992: from the Algerian Center for Radiation Protection and Health, now Section Head of the IAEA's Dosimetry and Medical Radiation Physics section.
- Frank Delaunay, Apr 1992 – Oct 1992: from the French primary radiation dosimetry standards laboratory, now Group leader there.
- Mahrez Bouchefer, Oct 1992 – Dec 1992: from the Algerian Center for Radiation Protection and Health.
- Ammar Herrati, Oct 1994 – Dec 1994: from the Algerian Center for Radiation Protection and Health.
- Jette Borg, Oct 1994 – April 1995: from RISO, Denmark.
- Grisel Mora, Oct 1995– May 1996: from Centro de Fisica Nuclear da Universidade de Lisboa, Portugal.
- Kaname Omata, Nov 1997 – Nov 1998: National Institute of Radiological Sciences, Japan.
- Jakob Helt-Hansen, Jan 1999 – June 1999: from RISO, Denmark.
- Gultekin Yegin, Sept 2003-March 2004, studying with me on a Turkish PDF funded by Tubitek and NATO.
- Dr Guerda Massillon, March 2012 learning to use EGSnrc, a Prof at UNAM, Mexico City

Post-doctoral Fellows and Research Associates who have worked under my supervision

- Lily Buja-Bijunas, 1980, now works for Ontario Power Authority
- Henryk Mach, 1982–83, deceased, had been Division Head and Prof of Nuclear Physics at Polish National Centre for Nuclear Research
- Wendy Ewart, 1982, 1984, deceased
- Bruce Faddegon 1990–92, Retired Prof. at UCSF Cancer Clinic, San Francisco, FAAPM.
- Jiangshen Jason Sun, 1992, Medical Physics consultant, Ottawa
- X. Allen Li, July 1992 – June 1993: FCAR PDF, Prof. and Chief of Physics at Medical College of Wisconsin. FAAPM.
- Charlie Ma, 1993–96, who left to become an Associate Prof at Stanford University Medical Center, Stanford, Ca and is now Professor and Director of Radiation Physics at the Fox-Chase Cancer Center in Philadelphia (one of 10 largest departments in the US). FAAPM.
- Jan P Seuntjens, 1995–1999, at which point he came on staff at NRC. In 2000 became a Professor at McGill University and Head of the McGill Medical Physics program and from 2021, Head of Medical Physics at Princess Margaret Hospital. FAAPM.
- Iwan Kawrakow, 1997–1999, at which point he came on staff at NRC. Was Director of Research at ViewRay Inc and now independent consultant.
- Jette Borg, 1997 – 1999, Clinical Physicist at the Ontario Cancer Institute in Toronto.
- Claus Yang, 1997 – 1999, Chief Physicist, University of Mississippi Medical Center.
- George Daskalov, 1997 – 2001, Chief Medical Physicist at St. Francis Hospital and Medical Center, Hartford, CT
- Ge Zeng, 2001 – 2003, PDF co-supervised with Norman Klassen, Clinical Physicist at the Peel Regional Cancer Centre and Assistant Professor in the Department of Radiation Oncology, University of Toronto.
- Gultekin Yegin, Sept 2005–Sept 2006: PDF, now a professor of physics in Turkey.
- Palani Selvam April 2004– March 2006: PDF from Mumbai, India, Research Group Leader at BARC, Mumbai.
- Guoming Xiong June 2006–Dec 2007: PDF, now Medical Imaging Physicist at University Hospital of Munich
- Rowan Thomson Sept 2007–Aug 2010: PDF/RA, now is Full Prof at Carleton University as a Tier II Canada Research Chair and Associate Dean of Science for EDI.
- Manuel Rodriguez Sept 2011 – Aug 2013: PDF/RA who did a Physics Residency at PMH in Toronto after which he became a clinical physicist in Victoria.

- Bryan Muir, Sept 2013 – Jan 2014: RA after completing his PhD with me while he awaited a position at NRC. Now a research scientist at NRC.
- Marc Chamberland, Sept 2015 – Sept 2016: RA working on the development of `egs.brachy` user code of EGSnrc for fast brachytherapy dose calculations. Now a clinical medical physicist at the University of Vermont Medical Center, Burlington.
- Victor Malkov, Feb 2018 – Apr 2018: RA after completing his PhD with me while awaiting his Visa's etc for a post-doc position in Utrecht. Now a clinical physicist at Mayo Clinic, Rochester MN.
- Habib Safigholi, Oct 2018 – Aug 2021: Then completed certificate program at McGill and currently a medical physics resident at the Jewish General Hospital, McGill University, Montreal, Quebec.

Invited Talks at Conferences

1. World Models and Reality: at the CAP Congress, Toronto, 1975.
2. Measurement with a Gold Activation Foil in an Andersson-Braun Remmeter: at the Health Physics Society Meeting in Orlando Florida, Feb. 1982.
3. Monte Carlo Calculations for Radiation Dosimetry: at the CAP Congress, Kingston, June 1982.
4. Work of the NRC Dosimetry Group: at the WESCAN Medical Physics Meeting, Calgary, March 1982.
5. Monte Carlo Calculations in Radiation Dosimetry: at the Workshop on Dosimetry in Non-Homogeneous Media, Edmonton, March 1983.
6. The Use of Monte Carlo Techniques in Radiation Therapy: at the Symposium on Computers in Radiation Therapy, Can.College of Physicists in Medicine.,Quebec, June 1983.
7. The Use of EGS for Monte Carlo Calculations in Medical Physics: at the First Inter-American Meeting of Medical Physics, Chicago, July 1984.
8. Monte Carlo Calculations for Radiation Dosimetry and Treatment Planning: at the Kuopio School on Clinical Dosimetry, Kuopio, Finland, August 1985.
9. The Application of Monte Carlo Simulation to Dosimetry: at the VIIth International Conference on Medical Physics, Helsinki, Finland, August 1985.
10. Energy-Loss Straggling in Electron Monte Carlo Transport: at the American Nuclear Society Annual Meeting, Reno Nevada, June 1986.
11. Services Offered by the Ionizing Radiation Standards Section: at the WESCAN Meeting, Edmonton, March 1987.
12. Standards for Dosimetry: at the Symposium of the Canadian College of Physicists in Medicine on Physics of Radiation Oncology: Evaluation and Perspectives, Toronto, June 1987.
13. Report on the International Workshop on Monte Carlo Transport of Electrons and Photons below 50 MeV, at the Radiation Physics Workshop held at Chalk River Nuclear Labs, March 2, 1988.
14. Monte Carlo Simulation of Electron-Photon Transport and Applications to Radiation Dosimetry: at the World Congress on Medical Physics, San Antonio Texas, Aug 6-12, 1988.
15. Monte Carlo Calculation of Wall Correction Factors for Ion Chambers Used in Primary Standards of Exposure: at the Annual Meeting of the European Society for Therapeutic Radiology and Oncology, The Hague, Holland, Sept 4-8, 1988.
16. Fundamentals of Radiation Dosimetry and the AAPM TG-21 Protocol: at the AAPM Annual Meeting, Memphis, July 1989.
17. The OMEGA Project, Treatment planning for electron beam radiotherapy using Monte Carlo Techniques; at the Institute of Physical Scientists in Medicine meeting on Monte Carlo in Radiation Physics Meeting, Sept 29, 1989, London England.
18. The Role of Electron Transport Simulation in Radiation Dosimetry at the Berger Symposium on Electron Transport, at NIST, Washington, April 2-3, 1990.

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Invited Talks at Conferences (cont)

19. Bragg Gray Cavity Theory for ^{192}Ir ?, at the NIST Workshop of Dosimetry of High Dose Rate Afterloaders, Oct 31, 1991.
20. Monte Carlo Calculations for Air Kerma Standards, at the NIST Workshop of Dosimetry of High Dose Rate Afterloaders, Nov 1, 1991.
21. Clinical Dosimetry Based on Absorbed-Dose Standards?, at Symposium to Honour John Laughlin, Memorial Sloan Kettering Cancer Center, New York, April 1–2, 1993.
22. Towards a Dosimetry System Based on Absorbed-Dose Standards, at IAEA Symposium on Measurement Assurance in Dosimetry, May 24 – 27, 1993, Vienna.
23. Towards a Dosimetry System Based on Absorbed-Dose Standards, at the Annual Meeting of the Council on Ionizing Radiation Measurement Standards (CIRMS), Washington DC, Nov 8–10, 1993
24. A Clinical Dosimetry System Based on Absorbed-Dose Standards, at the World Congress on Medical Physics, Rio, Brazil, Aug 1994.
25. Realistic Accelerator Simulations for External Beam Radiotherapy, at the World Congress on Medical Physics, Rio, Brazil, Aug 1994.
26. Fundamentals of Dosimetry Protocols, at the Summer School of the South African Association of Physicists in Medicine and Biology, May 10, 1996, Pretoria, South Africa
27. New Trends in Clinical Dosimetry Protocols: absorbed dose to water calibrations, at the Summer School of the South African Association of Physicists in Medicine and Biology, May 10, 1996, Pretoria, South Africa
28. Fundamentals of Dosimetry Based on Absorbed Dose Standards, June 25, 1996 at American Association of Physicists in Medicine's Summer School on Teletherapy Physics: Present and Future, held in Vancouver B.C.
29. Summary of the New Dosimetry Protocol, July 25, 1996 at the annual meeting of the AAPM, Philadelphia.
30. The Impact of Monte Carlo Simulation of Radiotherapy Beams, Sept 4, 1996 at European Federation of organizations for Medical Physics meeting in Trieste, Italy.
31. Radiotherapy Beams: Who Needs Them? during opening plenary session on Monte Carlo at the XII-th International Conference on the Use of Computers in Radiotherapy, May 27, 1997 in Salt Lake City, Utah.
32. The AAPM's New TG-51 Dosimetry Protocol at the meeting of the S.W. Chapter of the AAPM, Galveston Texas, April 3, 1998
33. A Review of the AAPM's TG-51 protocol during an NRC session at the Annual Symposium of Canadian College of Physicists in Medicine, London Ontario, June 18, 1998.
34. The AAPM's New TG-51 Dosimetry Protocol during the Attix Memorial Plenary Symposium at the Annual meeting of the AAPM in San Antonio Texas, Aug 12, 1998.
35. Dosimetry based on absorbed-dose calibration factors at Annual meeting of European Society for Therapeutic Radiology and Oncology, Edinburgh, Scotland, Sept 21, 1998
36. The AAPM's New TG-51 Dosimetry Protocol at the annual meeting of the Council on Ionizing Radiation Measurement Standards in Washington D.C., Oct 19, 1998.
37. The IRS Group of NRC, at the annual meeting of the Council on Ionizing Radiation Measurement Standards in Washington D.C., Oct 21, 1998.

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Invited Talks at Conferences (cont)

38. Improving cancer care by simulating transport of ionizing radiation, at the 1998 Canadian Undergraduate Physics Conference in Kingston Ontario, Nov 13, 1998.
39. The AAPM's TG-51 Protocol for Clinical Reference Dosimetry of High-Energy Beams, at the AAPM Annual Meeting, Nashville, TN, July 26, 1999.
40. Monte Carlo Simulation for Radiation Dosimetry at NRCC, at the CIRMS workshop on Computational Dosimetry at NIST, Washington DC, April 6, 2000
41. Why to Use TG-51, at the Missouri River Valley Chapter of the AAPM's Spring Meeting at the Lake of the Ozarks, Missouri, May 6, 2000.
42. Comparison of clinical Monte Carlo codes, at the International Conference on the Use of Computers in Radiotherapy, Heidelberg, Germany, May 22, 2000.
43. Why to Use TG-51, at the World Congress of Medical Physics, Chicago, July 25, 2000.
44. Radiation Dosimetry: Some Fundamentals, at the Tutorial Session of "Monte Carlo 2000", Lisbon Portugal, 22 Oct, 2000.
45. Radiation Dosimetry and Monte Carlo Calculations, at the "Monte Carlo 2000" Conference in Lisbon Portugal, 23 – 26 Oct, 2000.
46. The BEAM system: a status report, at the International Workshop on Monte Carlo Treatment Planning in Palo Alto Ca, Nov 9 – 11, 2000.
47. The ICCR benchmark for RTP dose engines, at the International Workshop on Monte Carlo Treatment Planning in Palo Alto Ca, Nov 9 – 11, 2000.
48. Why to Use TG-51 at the American College of Radiology's satellite meeting, July 20, 2001 in Salt Lake City, Utah.
49. Physics of the AAPM's TG-51 protocol for external beam reference dosimetry in radiotherapy, at the AAPM meeting, July 23, 2001 in Salt Lake City, Utah.
50. Monte Carlo treatment planning for radiotherapy, at the Annual meeting of the European Society for Therapeutic Radiology and Oncology in Seville, Spain, Sept 2001 (not delivered because of Sept 11 cancellation of all flights).
51. Monte Carlo calculations for air-kerma standards in a ^{60}Co beam, at the International Workshop on Recent developments in accurate radiation dosimetry, Oct 11-13, 2001, Montreal.
52. Physics of the AAPM's TG-51 protocol for external beam reference dosimetry in radiotherapy, at the International Workshop on Recent developments in accurate radiation dosimetry, Oct 11-13, 2001, Montreal.
53. Monte Carlo Methods for Radiation Therapy and Dosimetry, at the Canadian Nuclear Society Annual meeting in Toronto, June 3-5, 2002
54. Radiation used for treatment of cancer, Plenary Session at the Canadian Association of Physicists Annual Meeting, Quebec City, June 3-5, 2002. Talk was presented on behalf of Jack Cunningham who was unable to attend because of medical problems.
55. Monte Carlo techniques for cancer radiotherapy at a Workshop on 'The Present and future of cancer research in Ottawa', June 19, 2003
56. Air Kerma standards: Past, present and Future, at 2003 annual meeting of the AAPM in San Diego, Aug 14, 2003.

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Invited Talks at Conferences (cont)

57. Monte Carlo techniques for radiation standards, at the World Congress of Medical Physics, Sydney Australia, Aug 26, 2003.
58. Monte Carlo treatment planning: promise and pitfalls, at the annual meeting of ASTRO, Salt Lake City, Utah, Oct 21, 2003.
59. Monte Carlo simulations for Medical Physics, at the annual meeting of the Council on Ionizing Radiation Measurement Standards (CIRMS), Washington DC, Oct 27, 2003.
60. Monte Carlo simulation of radiotherapy sources: recent advances in the BEAM code, at the Varian Research Partners Symposium, Mary Lake, Florida, Jan 30, 2004.
61. Recent Improvements in the BEAMnrc code, at the McGill Workshop on Monte Carlo Treatment Planning, Montreal, May 3, 2004.
62. Monte Carlo simulation of electron-photon transport: from particle physics to cancer radiotherapy, at the CAP Annual Meeting, Winnipeg, Manitoba, June 16, 2004.
63. Monte Carlo for radiotherapy treatment planning, at a Symposium on Monte Carlo Treatment planning at the 2004 AAPM annual meeting in Pittsburgh, PA, July 27.
64. status report on the EGSnrc and BEAMnrc Monte Carlo packages, at 6th International Topical Meeting on Industrial Radiation and Radioisotope Measurement Applications, IRRMA6, at McMaster University in Hamilton, June 20-24, 2005
65. Fast Monte Carlo dose calculations for brachytherapy at ESTRO Physics Meeting in Lisbon, Portugal, Sept 26, 2005
66. Fast Monte Carlo dose calculations for brachytherapy at the Varian Research partners Symposium, Charleston SC, Feb 9, 2006
67. Thoughts on Beta-ray dosimetry standards at the ISO/TC85 Meeting in Ottawa, June 20, 2006.
68. Fast Monte Carlo dose calculations for brachytherapy with seeds, HDR and X-ray sources, at the European Workshop on Monte Carlo Treatment Planning in Gent Belgium, Oct 24, 2006
69. Applications of Monte Carlo simulations to radiation dosimetry, at the McGill International Workshop on Monte Carlo Techniques, May 30, 2007.
70. 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.
71. 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.
72. Writing and reviewing papers for the journal Medical Physics, at the 2007 AAPM annual meeting in Minneapolis, July 23, 2007.
73. Physics of the TG-51 protocol, at the 2007 AAPM annual meeting in Minneapolis, July 25, 2007.

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Invited Talks at Conferences (cont)

The following 4 invited talks were presented 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:

74. BEAMnrc: a code to simulate radiotherapy external beam sources
75. Variance reduction techniques used in BEAMnrc
76. Applications of Monte Carlo simulations to radiation dosimetry
77. Monte Carlo simulations for brachytherapy
78. Review of the AAPM Task Group Report No. 105 at the 2008 AAPM annual meeting in Houston, Tx, July 2008.

Following 4 invited talks were presented at a Course on Monte Carlo for Medical Physics organized by Italian Association of Medical Physicists (AIFM) held in Rome, May 21-23, 2009.

79. A review of AAPM’s TG-105: Issues associated with clinical implementation of Monte Carlo based photon and electron external beam treatment planning (May 21)
80. Accelerator modelling with BEAMnrc (May 21)
81. Some recent dosimetry studies with EGSnrc(May 22).
82. Limitations and benchmarks of EGSnrc(May 22).

83. General characteristics of radiation dosimeters and a terminology to describe them, at the 2009 AAPM Summer School on Clinical Dosimetry Measurements for Radiotherapy, held in Colorado Springs, Co, June 22, 2009.
84. The physics of the AAPM’s TG-51 protocol, at 2009 AAPM Summer School , op. cit.
85. Past and Future of Monte Carlo in Medical Physics, closing keynote lecture at MC2009: Second European Workshop on Monte Carlo Treatment Planning held in Cardiff, Wales, Oct 19-21, 2009.
86. Monte Carlo simulations for brachytherapy and reference dosimetry at a meeting of the Upstate New York Association of Physicists in Medicine, Rochester NY, Nov 18, 2009.
87. The Physics of the TG-51 Dosimetry Protocol, in a Physics Symposium at the Radiological Society of North America’s annual meeting in Chicago, Il, Nov 29, 2010.
88. The value of $(W/e)_{\text{air}}$ and its importance to ion chamber dosimetry, at the Annual Meeting of the Canadian Association of Physicists, St Johns, NL, June 16, 2011.
89. Progress in calculations of k_Q for TG-51, at AAPM Annual Meeting in Vancouver, Aug 1-4, 2011.
90. The Future of Medical Physics: Challenges and Opportunities, as part of the President’s Symposium plenary session at the AAPM Annual Meeting in Vancouver, Aug 1-4, 2011.
91. Terminology and Notation for Instrumentation for Clinical Dosimetry at the RSNA meeting in Chicago, Nov 28, 2011.
92. Monte Carlo for small beam dosimetry as keynote speaker at Italian Association of Physicists in Medicine meeting on Small Beam Dosimetry, Turin, Italy, Dec 16, 2011.
93. Updating the AAPM’s TG-51 protocol for clinical reference dosimetry in high energy photon beams, at 2012 World Congress on Medical Physics held in Beijing, China, May 2012.

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Invited Talks at Conferences (cont)

94. The TG-51 Addendum: New k_Q values, at the AAPM Annual Meeting in Charlotte, NC, Aug 2, 2012.
95. Transport Parameter Selection in EGSnrc, a special teaching session at the XVII-th International Conference on the Use of Computers in Radiotherapy in Melbourne, Australia, May 8, 2013
96. Accuracy of the EGSnrc code system, Plenary talk at the XVII-th International Conference on the Use of Computers in Radiotherapy in Melbourne, Australia, May 9, 2013
97. Improving LDR brachytherapy TLD measurements using Monte Carlo techniques at the Int'l Workshop on Monte Carlo Techniques in Medical Physics in Quebec City, June 18, 2014.
98. Monte Carlo Simulation for Radiation Dosimetry at The Mackie Scientific Symposium at the University of Wisconsin, Oct 27th, 2014
99. Accuracy of the EGSnrc code system, at the First Brazilian Congress of Ionizing Radiation Metrology (Congresso Brasileiro de Metrologia das Radiações Ionizantes) at the IRD in Rio de Janeiro, Brazil, Nov 23, 2014
100. k_Q data for reference dosimetry at the 2015 World Congress on Medical Physics and Biomedical Engineering, June 11, 2015 in Toronto.
101. Authorship guidelines, thoughts on reviewing and producing good figures at the 2015 World Congress on Medical Physics and Biomedical Engineering, June 12, 2015 in Toronto.
102. Using TLDs accurately for brachytherapy at the XX Brazilian Congress of Medical Physics in Rio de Janeiro, Aug 12, 2015.
103. Monte Carlo as used in dosimetry protocols and standards at the XX Brazilian Congress of Medical Physics in Rio de Janeiro, Aug 14, 2015.
104. EGSnrc calculations in a magnetic field, at the symposium entitled 'From vision to sight: the MRI linac' held in Utrecht, The Netherlands, Sept 14-15, 2015.
105. Reference dosimetry – the AAPM TG-51 addendum, at the VII Congreso Latinoamericano de Física Medica XIII Congreso Argentino de Física Medica ALFIM - SAFIM, Cordoba, Argentina, Sept 4 – 7, 2016.
106. Accuracy of EGSnrc calculations, at the VII Congreso Latinoamericano de Física Medica XIII Congreso Argentino de Física Medica ALFIM - SAFIM, Cordoba, Argentina, Sept 4 – 7, 2016.
107. Improving TLD reference dosimetry for LDR brachytherapy using Monte Carlo techniques, at the VII Congreso Latinoamericano de Física Medica XIII Congreso Argentino de Física Medica ALFIM - SAFIM, Cordoba, Argentina, Sept 4 – 7, 2016.
108. Dosimetry and Monte Carlo simulations in magnetic fields for MRI-linacs, at the VII Congreso Latinoamericano de Física Medica XIII Congreso Argentino de Física Medica ALFIM - SAFIM, Cordoba, Argentina, Sept 4 – 7, 2016.
109. Fun with Monte Carlo: or how I keep learning radiation physics, at the Int'l Conf on Monte Carlo Techniques for Medical Applications in Naples, Italy, Oct 15-18, 2017.

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Invited Talks at Conferences (cont)

110. Dose to medium or dose to water: some issues, at the AAPM-ISEP course: Challenges in Modern Radiation Therapy Physics in Ljubljana, Slovenia, July 7-9, 2018.
111. Reference dosimetry, at the AAPM-ISEP course: Challenges in Modern Radiation Therapy Physics in Ljubljana, Slovenia, July 7-9, 2018.
112. Reference dosimetry in MRI linacs, at the AAPM-AMPR's (Assoc of Medical Physicists in Russia) course held at the Blokhin National Medical Research Centre of Oncology in Moscow, Russia, Sept 24-26, 2019.
113. Reference dosimetry with TRS-398 in megavoltage photon and electron beams, at the AAPM-AMPR's (Assoc of Medical Physicists in Russia) course held at the Blokhin National Medical Research Centre of Oncology in Moscow, Russia, Sept 24-26, 2019.
114. Dose to medium or dose to water: some issues, at the AAPM-AMPR's (Assoc of Medical Physicists in Russia) course held at the Blokhin National Medical Research Centre of Oncology in Moscow, Russia, Sept 24-26, 2019.
115. Advances in reference dosimetry, at the AAPM-AMPR's (Assoc of Medical Physicists in Russia) course held at the Blokhin National Medical Research Centre of Oncology in Moscow, Russia, Sept 24-26, 2019.
116. 2021 Celebrating the Life and Contributions of Jack Cunningham, as part of 2021 AAPM (virtual) meeting. July 28, 2021.

Invited Seminars

1. The Nuclear Structure of ^{19}F : at U of T Physics Department, Dec 1971.
2. The Three Particle Structure of ^{19}F : at Oxford University, Oct 1972.
3. Why Not to Trust a Neutron Remmeter: at Ontario Hydro Health Physics Services Lab, June 9,1978.
4. Why Not to Trust a Neutron Remmeter: at the AECSB, July 1978.
5. Nuclear Power in Developing Countries: at Chalk River Nuclear Labs, April 24,1978.
6. Is CANDU Appropriate for Developing Countries: at NRC, May 18, 1978.
7. Nuclear Power in Developing Countries: at Ryerson College, Nov 13, 1978.
8. The NRC 6-MeV Gamma Calibration Facility: at Ontario Hydro Central Safety Services, April 1980.
9. Use of a Neutron Remmeter to Measure Leakage Neutrons from Medical Electron Accelerators: at Montreal General Hospital, May 1980.
10. Radiation Standards at the NRC: Grand Rounds at Cross Cancer Institute, Edmonton, March 1983.
11. Monte Carlo Techniques for Studying Electron and Photon Transport: Physics Department Colloquium, McMaster University Nov 1983.
12. Calculation of Electron and Photon Contamination in a ^{60}Co Therapy Head: Grand Rounds at the U of Rochester Cancer Center, May 2,1984.
13. The Use of EGS for Monte Carlo Calculations in Radiation Dosimetry: Brookhaven National Laboratory, Upton N.Y. Jan 28,1985.
14. The Use of EGS for Monte Carlo Calculations in Radiation Dosimetry: Memorial Sloan-Kettering Cancer Center, New York, Jan 29,1985.
15. Using the EGS System: Memorial Sloan-Kettering Cancer-Center, Jan 30,1985
16. The Use of EGS for Monte Carlo Calculations in Radiation Dosimetry: Department of Radiation Physics, Umea University, Sweden, Mar 1,1985.

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Invited Seminars (cont)

Six lectures at the Department of Radiation Physics at the University of Linköping, Sweden, for a course with students from 6 countries, March 1985.

17. EGS, History, Structure and Physics
18. Strategies for Electron Transport in EGS
19. Depth-Dose curves for electrons and photons between 10 keV and 20 GeV
20. Absorbed dose distributions in inhomogeneous media.
21. Simulating a ^{60}Co Therapy Head.
22. Variance Reduction Methods.

23. Monte Carlo Techniques in Radiation Dosimetry: at the Ontario Cancer Institute - Dept of Medical Biophysics, U of T, Dec 18, 1985.
24. The Use of EGS for Monte Carlo Calculations in Radiotherapy Physics: Medical Physics Division, Washington University School of Medicine, St Louis Missouri, Jan 6 1986.
25. Monte Carlo Calculation of Electron Contamination in ^{60}Co Beams and Inhomogeneity Effects in Electron Beams: at the Tom Baker Cancer Center, U of Calgary, Jan 31, 1986.

Presented 3 lectures and co-authored 3 others at the Course on *Monte Carlo Transport of Electrons and Photons below 50 MeV*. held at the Ettore Majorana Centre in Erice, Sicily, Sept 23 to Oct 3, 1987.

26. 20 MeV Electrons on a Slab of Water.
27. Experimental Benchmarks of EGS.
28. A Comparison of EGS and ETRAN.

29. Monte Carlo Transport of Electrons and Photons Below 50 MeV - A Review of the Course at Erice: at AECL, Chalk River, March 2, 1988.
30. Monte Carlo Applications to Radiation Dosimetry: at the Institute of Radiation Protection and Dosimetry, Rio, Brazil, May 20, 1988.
31. Fundamentals of Radiation Dosimetry. Five lectures at a school on "Protocols and Dosimetry" held at the National Cancer Institute in Rio, Brazil, May 23-27, 1988.
32. Electron Monte Carlo Calculations in Medical Physics; at Yale University School of Medicine, Jan 26, 1989.
33. Instructor at 4-day course on the "Use of EGS4" at the National Physical Laboratory, Teddington, U.K. Sept 25-28, 1989.
34. Changing Primary Standards and the Effects on Clinical Dosimetry, Departmental Seminar at the University of Wisconsin, Nov 6, 1989.
35. Electron Transport Simulations in Radiation Dosimetry, Graduate Seminar at U of Wisconsin, Nov 6, 1989.
36. Monte Carlo Simulation of Radiation Transport for Clinical Treatment Planning, MPORU Physics Dept seminar at Carleton University, Nov 8, 1989.

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Invited Seminars (cont)

37. New Dosimetry Standards, at the 1990 AAPM Summer School at the University of Kansas, July 16, 1990.
38. Fundamentals of High Energy X-ray and Electron Dosimetry Protocols, at the 1990 AAPM Summer School at the University of Kansas, July 16, 1990.
39. New Dosimetry Standards, at the National Physical Laboratory, UK, May 15, 1991.
40. New Dosimetry Standards, at the Royal Marsden Hospital, Surrey, May 17, 1991.
41. Monte Carlo Calculations of Electron Transport: From High Energy Physics to Cancer Treatment, at the Ottawa-Carleton Institute for Physics, Dec 18, 1991.
42. Instructor at 4-day course on the “Use of EGS4” at the Institute for Applied Physiology and Medicine, Seattle Washington, March 9–13, 1992.
43. Monte Carlo Calculations for Radiotherapy Physics and Radiation Dosimetry, at the M.D. Anderson Cancer Center, Houston Tx, March 31, 1992.
44. Towards Clinical Dosimetry Based on Absorbed Dose Standards, MPORU seminar at the Ottawa General Hospital, Oct 15, 1992.
45. Use of Absorbed-Dose Calibrations and Calibration of Parallel-Plate Ion Chambers – Ottawa Regional Cancer Center, Civic Hospital, Oct 30, 1992.
46. Towards Clinical Dosimetry Based on Absorbed Dose Standards, at Winnipeg Cancer Clinic, Jan 25, 1993
47. Instructor at 5-day course on the “Use of EGS4” at the National Physical Laboratory, Teddington, U.K. Sept 6–10, 1993.
48. Towards a Dosimetry System Based on Absorbed Dose Standards, at the NPL, Teddington, UK, Sept 7, 1993
49. Monte Carlo Simulation: from High Energy Physics to Clinical Physics, at the AECP, Ottawa to a joint meeting of the local chapters of the Canadian Nuclear Society and the Canadian Radiation Protection Association, Feb 8, 1994.
50. Monte Carlo Simulation: from High Energy Physics to Clinical Physics, Landauer Memorial Lecture in Oakland California, to a joint meeting of the Bay area chapters of the AAPM and HPS, Feb 10, 1994.
51. Monte Carlo Simulation: from High Energy Physics to Clinical Physics, April 1994, Institute Colloquium, Institute for National Measurement Standards, NRC.
52. Instructor at 5-day course on the “Use of EGS4” at Capri, Italy, June 28 – July 1, 1994.
53. The Work of the IRS Group, at INMS Institute Seminar, Feb 23, 1995.
54. Instructor at 5-day course on the “Use of EGS4” at Lanzl Institute, Seattle Washington, Mar 6 – 9, 1995
55. Instructor at 5-day course on the use of BEAM/OMEGA at U of Wisconsin, Oct 2–6, 1995
56. The Impact of Monte Carlo Simulation of Radiotherapy Beams, March 19, 1996, Medical Physics Seminar at M.D. Anderson Cancer Center, Houston, Texas.
57. The Changing Basis of Radiotherapy Dosimetry, May 6, 1996, Department of Physics, University of Witwatersrand, Johannesburg, South Africa.

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Invited Seminars (cont)

58. Electron Beams and Monte Carlo Techniques, May 7, 1996, Radiotherapy Department, Hillbrow Hospital, Johannesburg, South Africa.
59. Fundamentals of Dosimetry Protocols, at the Dept of Biophysics, University of the Orange Free State, Bloemfontein, South Africa, May 20, 1996.
60. Monte Carlo Studies of Electron Beams, at the Dept of Biophysics, University of the Orange Free State, Bloemfontein, South Africa, May 20, 1996.
61. The TG-51 dosimetry protocol for external beam radiotherapy, MPORU seminar at the Ottawa General Hospital, Jan 23, 1997.
62. The TG-51 dosimetry protocol for external beam radiotherapy: Rationale and Summary, March 19, 1997, Medical Physics Seminar at M.D. Anderson Cancer Center, Houston, Texas.
63. Impact of Monte Carlo Simulation of Radiotherapy Beams, Oct 13, 1997, Medical Physics Seminar, Dept of Radiation Physics, University of Umea, Sweden
64. The TG-51 dosimetry protocol for external beam radiotherapy: Rationale and Summary, Oct 14, 1997, Dept of Radiation Physics, University of Umea, Sweden
65. Impact of Monte Carlo Simulation of Radiotherapy Beams, Oct 15, 1997, Karolinska Institute, Stockholm, Sweden
66. Impact of Monte Carlo Simulation of Radiotherapy Beams, Nov 7, 1997, Medical Physics Unit, McGill University, Montreal.
67. Impact of Monte Carlo Simulation of Radiotherapy Beams, Dec 10, 1997, Dept of Physics, Kuopio University, Finland
68. Impact of Monte Carlo Simulation of Radiotherapy Beams, March 6, 1998, NIST Radiation Physics Seminar
69. Improving cancer therapy by simulating the transport of ionizing radiation, April 22, 1998, Ottawa Chapter of Sigma Xi.
70. The AAPM's TG-51 Dosimetry Protocol, at the NPL, Teddington, UK, June 12, 1998.
71. The TG-51 Dosimetry Protocol, Departmental Seminar, Dept of Medical Physics, University of Wisconsin, Madison WI, Nov 9, 1998.
72. Improving cancer care by simulating the transport of ionizing radiation, at Physics Dept Colloquium, Carleton University, March 8, 1999.
73. The TG-51 Dosimetry Protocol, to the McGill Medical Physics Unit at the Montreal General Hospital, April 16, 1999.
74. Improving cancer care by simulating the transport of ionizing radiation to the McGill Chapter of the Sigma Xi Society, April 16, 1999.
75. The TG-51 Protocol, at the RAMPS meeting, Memorial Sloan Kettering Hospital, New York City, March 28, 2000.
76. Monte Carlo Simulation for Radiation Dosimetry at NRCC, at Washington University, St Louis, May 5, 2000.
77. Improving cancer care by simulating the transport of ionizing radiation, at the Marie Sklodowska-Curie Institute Cancer Centre, Warsaw, Poland, Aug 17, 2000.

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Invited Seminars (cont)

78. The use of Monte Carlo methods to model radiation sources, at MDS Nordion, Kanata, Sept 6, 2000.
79. Radiation Dosimetry and Monte Carlo Calculations, at the Ottawa Medical Physics Institute's seminar series, Sept 27, 2001.
80. Monte Carlo Calculations for radiation dosimetry, at the Princess Margaret Hospital, Toronto, Clinical Physics Rounds, Jan 24, 2002.
81. Monte Carlo Calculations for radiation dosimetry, at the University of Wisconsin, Department of Medical Biophysics, Madison, WI, April 15, 2002.
82. Radiation Transport by Monte Carlo: From High Energy Physics to the Clinic, Department of Physics, Carleton University, Nov 29, 2002.
83. Monte Carlo Calculations for radiation dosimetry, at Linköping University, Sweden May 26, 2003.
84. Monte Carlo Calculations for radiation dosimetry, at Karolinska Institute at Stockholm University, May 28, 2003.
85. Monte Carlo simulation of electron-photon transport: from particle physics to cancer radiotherapy, CAP Lecture at the Department of Physics, University of Windsor, Windsor Ontario, March 2, 2004.
86. Monte Carlo simulation of electron-photon transport: from particle physics to cancer radiotherapy, CAP Lecture at the Department of Physics, University of Western Ontario, London Ontario, March 3, 2004.
87. Monte Carlo simulation of electron-photon transport: from particle physics to cancer radiotherapy, Cameron Symposium Lecture at the University of Wisconsin, Sept 13, 2004.
88. Improving the efficiency of EGSnrc Monte Carlo calculations at the McGill Medical Physics Unit, Montreal General Hospital, Montreal, Oct 15, 2004.
89. Improving the efficiency of EGSnrc Monte Carlo calculations at the Ottawa Medical Physics Institute seminar series, Jan 27, 2005 at Health and Welfare Canada.
90. Fast MC dose calculations for brachytherapy with seed, HDR or X-ray sources at the Ottawa Medical Physics Institute seminar series, May 24, 2007 at The Institute for National Measurement Standards, NRC.
91. Measuring radiation doses for cancer therapy, at the MIT Club of Ottawa, Nov 24, 2009.
92. Instructor at a 4 day workshop on Monte Carlo Modelling with BEAMnrc held at the Bhabha Atomic Research Centre (BARC), Mumbai, India, Dec 13 – 16, 2010
93. Review of AAPM's TG-105: Issues associated with clinical implementation of Monte Carlo based photon and electron external beam treatment planning, at P. D. Hinduja National Hospital and Medical Research Centre, Mumbai, India, Dec 16, 2010.

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Invited Seminars (cont)

94. Review of AAPM's TG-105: Issues associated with clinical implementation of Monte Carlo based photon and electron external beam treatment planning, at the Christian Medical College in Vellore, India, Dec 18, 2010.
95. Writing and reviewing papers for the journal, Medical Physics, at the Christian Medical College in Vellore, India, Dec 18, 2010.
96. The value of $(W/e)_{\text{air}}$ and its importance to ion chamber dosimetry, at the Jan, 2012 meeting of the Ottawa Medical Physics Institute held at the Ottawa Hospital Regional Cancer Centre.
97. From bombs to high energy physics to clinical use: Monte Carlo simulation of radiation transport, Oct 29, 2012 at the Physics Department, University of British Columbia
98. Monte Carlo simulation of radiation transport, from bombs to the clinic, at the Ottawa-Carleton Institute of Physics Annual December Symposium held at Carleton University, Dec 14 2012.
99. How to accurately represent and measure a radiotherapy beam's spectrum, Jan 28, 2013, Medical Physics Department Colloquium, University of Wisconsin.
100. How to accurately represent and measure a radiotherapy beam's spectrum, Apr 16, 2013, Medical Physics Department Colloquium, University of Chicago.
101. Accurately representing and measuring a radiotherapy beam's spectrum, Jan 24, 2014, Cancer Care Manitoba, Winnipeg.
102. From bombs to high energy physics to clinical use: Monte Carlo simulation of radiation transport, Jan 24, 2014, Physics Department, University of Manitoba.
103. Accurately representing and measuring a radiotherapy beam's spectrum, March 24, 2014, Hofstra University Physics Department, Long Island, NY.
104. Accurately representing and measuring a radiotherapy beam's spectrum, March 25, 2014, Special Grand Rounds, Memorial Sloan-Kettering Cancer Center, New York City.
105. Monte Carlo Simulation or radiation transport: from bombs to the clinic, March 25, 2014, Failla Memorial Lecture to the Radiological and Medical Physics Society of New York (RAMPS) and The Greater New York Chapter, Health Physics Society at the Griffis Faculty Club at Weill Cornell Medical College.
106. How to accurately represent and measure a radiotherapy beam's spectrum, May 20, 2016, McGill University Medical Physics Unit, Montreal.
107. Should we report D_{med} or D_{water} in radiotherapy?, Nov 18, 2021, Ottawa Medical Physics Institute seminar, (virtual)
108. Should we report D_{med} or D_{water} in photon beam radiotherapy?, May 11, 2022, as part of COMP's Medical Physics Resident Seminar Series (virtual).

Refereeing/Grant Reviews

2009-2011 Member of 40 person Physics Evaluation Group of the Natural Sciences and Engineering Research Council of Canada (NSERC) which ranks all non-particle physics Discovery Grants and Research Tools and Instrumentation Grants.

I have been asked to review grant applications by:

Canada Research Chairs Program	NSERC
Canada Foundation for Innovation	Alberta Cancer Board
Swiss National Science Foundation	National Institutes of Health (NIH, USA)
Defense R&D Canada	Ontario Ministry of Northern Development
NRC's IRAP Program	Dalhousie University Research Services
Medical Research Council now Canadian Institutes of Health Research (CIHR)	
Fonds voor Wetenschappelijk Onderzoek - Vlaanderen (Belgium)	
Canadian Institute for International Peace and Security	

I have been asked to be an ad-hoc member of the National Institutes of Health Radiation Study Section (grant review panel in Washington, declined due to timing). I have been asked to join CIHR's Medical Physics and Imaging Grants Review Committee (2009 & 2010, declined).

I have been an Associate Editor of the journal Medical Physics (1987 – 2014) and Deputy Editor of the same journal (for radiotherapy) (2005–2013). I was on the International Advisory Board of Physics in Medicine and Biology from 2006 to 2014.

I have been asked to referee for the following Journals and books:

Medical Physics	Physics in Medicine and Biology
Physica Medica	International J of Applied Radiation and Isotopes.
Health Physics	Computer Physics Communications
Radiation Research	Int'l Journal of Radiation Oncology, Biology and Physics
Radiation Protection Dosimetry.	Nuclear Instruments and Methods A
Journal of Applied Physics	Nuclear Instruments and Methods B
Canadian Journal of Physics	Encyclopedia of Medical Devices and Instrumentation
Computerized Radiology	Journal of Computational Physics
IEEE Transactions on Electrical Insulation.	
Radiotherapy and Oncology	Journal of X-Ray Science and Technology

I have acted as external PhD examiner for:

- Cornell University Graduate School of Medical Sciences -
Memorial Sloan-Kettering Cancer Center (Sept 1985).
- U of T Dept of Medical Biophysics - Ontario Cancer Institute (Dec 85, May 89)
- U of Calgary - Tom Baker Cancer Center (Jan 1986)
- University of Witwatersrand, Johannesburg, (Aug 1994)
- Umea University, Umea Sweden (Oct 1997)
- McGill University, Montreal (Nov 1997)
- University of Newcastle, NSW Australia, (Feb, 1998)
- Linköping University, Sweden, (May 2003)
- University of Saskatchewan, (Dec 2009)

Teaching

While at Carleton University

- Winter 1975, second year physics course on electromagnetism as a sessional lecturer.
- Winter 1990, 1992, 1994 taught the dosimetry section of Radiotherapy Physics advanced graduate course (40% of 1 term course).
- Winter 2004/5/7/9/11/12/14/16/17/18/20/22, Physics 5206, advanced graduate course on Radiotherapy Physics.
- Winter 2005/6/7/8/9, Physics 1004, 1st year electromagnetism course for engineers.
- Winter 2013 Physics 5291 Special topics in Medical Physics gave a course on the EGSnrc and BEAMnrc code systems.
- Organized and lectured at BEAMnrc or EGSnrc courses sponsored jointly by Carleton University and NRC, April 2004, May 2005, Oct 2006, Oct 2007, Nov 2009 and Oct 2012.
- 2011, 2014, 2016 organized and gave two lectures at a Carleton University mini-symposium on Professionalism and Ethics for Medical Physics Graduate students. Nov 10, June 13 and June 2 respectively.

At NRC

- Organized and gave multiple lectures at Measurement Seminars on Ionizing Radiation Standards in 1983, 1990, 1994.
- Organized and gave multiple lectures at 4 day courses on EGS4 (EGSnrc post 2000) in 1986, 1987, 1990, 2000, 2001, 2002, 2003. Typically attended by 20 - 24 students paying \$1500 tuition.
- Organized and gave multiple lectures at 4 day courses on BEAM in 1996, 1997, 1998, 1999, 2000, 2001, 2002. Typically attended by 20 - 24 students paying \$3500 tuition.

Other courses

- Co-director of 10 day course on “Monte Carlo Transport of Electrons and Photons Below 50 MeV” at the Ettore Majorana Centre for Scientific Culture, Erice, Italy, 1987.
- A main lecturer at EGS4 courses which followed the course outline I developed at NRC.
 - 1989/1998 National Physical Laboratory, Teddington, UK
 - 1992/1995 Lanzl Institute, Seattle, WA, USA
 - 1993 National Physical Laboratory, Teddington, UK
 - 1994 Capri, Italy

cont ...

Teaching: Other Courses (cont)

- 1995, Helped organize and gave multiple lectures at BEAM course held in Madison WI.
- 1990 AAPM Radiotherapy Summer School in Lawrence Kansas, two lectures on fundamentals of radiation dosimetry
- 1996 AAPM Radiotherapy Summer School in Vancouver BC, a lecture on the new approach to clinical radiation dosimetry.
- 2005 Two back-to-back BEAMnrc courses at Sydney University in Australia.
- 2009: Associazione Italiana Fisica Medica school on “Il Methodo Monte Carlo Nella Fisica Medica” held in Rome, May: gave 4 of 18 lectures.
- 2009 Co-director of AAPM Summer School in Colorado Springs, Co, gave 2 lectures, authored three chapters in the associated book and co-authored a fourth.
- 2011, Instructor at a 2 week “IAEA Workshop on: Monte Carlo radiation transport and associated data needs for medical applications” held at the International Centre for Theoretical Physics(ICTP) in Trieste Italy, Oct 17-28,
- 2014, Instructor at a 1 week course on “Computer Simulation Using the EGSnrc Computer Code” at the Radiological Sciences Lab of the State University of Rio de Janeiro (LCR within UERJ), Nov 17 – 21.
- 2016, Instructor at a 1 week course on “Modelling radiation with Monte Carlo” at the Radiation Protection Bureau of Health Canada, Ottawa, May 24 – 27.
- 2016, Instructor at a 1 week course on “Modelling radiation with Monte Carlo” at the Medical Radiation Research Center in the Department of Medical Physics at the University of Wisconsin, June 6 – 10.
- 2017, Instructor at a 2 week “Joint ICTP-IAEA Workshop on Monte Carlo radiation transport and associated data needs for medical applications: EGSnrc” held at the International Centre for Theoretical Physics(ICTP) in Trieste Italy, Sept 18-29, 2017.
- 2018 Lecturer at a 1 week AAPM/IOMP – ISEP Therapy Course titled Challenges in Modern Radiation Therapy Physics which was held June 3-7 in Ljubljana, Slovenia
- 2019 Lecturer at a 1 week AMPR/ AAPM Training Course entitled “Medical Physics in Clinical Radiotherapy” held Sept 23 to 28, 2019 in Moscow, Russia
- 2023 Lecturer at 1 week EGSnrc course at University of Wisconsin, Madison WI.

Other Activities

- 1975–77: Member of the regional board of OXFAM Canada and Vice-Chair for 1977. Also chair of the Ottawa local committee.
- 1975–78: Helped manage a volunteer book store and craft store for OXFAM (revenue about \$30,000 / year).
- 1975–85: Involved with federal and provincial politics. Member of the federal policy committee which drafted the party's National Energy Policy in 1980.

Education

BSc(1968), MSc(1969), PhD (1972), all University of Toronto.

PhD Thesis: "The Nuclear Structure of ^{19}F "; Supervisor: A.E. Litherland.

Scholarships and Awards

NRC Postdoctoral Fellowship 1972-1973; NRC Graduate Fellowship, 1968 to 1972.; S.H. Janes Silver Medal, 1968, Victoria College of the U of T, for graduating first in physics; J.C.McLennan Prize, 1968, U of T Senate, for graduating first in physics; six other academic scholarships at U of T, 1964 to 1968; Senior U of T Letter in athletics(volleyball), 1967.

Additional Courses:

1975–76: Introductory Economics, Labour Economics, Development Economics, all three courses at Carleton University.

1976/77: Financial Accounting, Ottawa U. School of Management Science.

1988/89: Introductory Polish, Ottawa University.

Professional Organizations

The Canadian Association of Physicists

Canadian Organization of Medical Physicists

American Association of Physicists in Medicine.

European Society for Therapeutic Radiology and Oncology

Royal Society of Canada

Society of Directors of Academic Medical Physics Programs

Publications

A complete listing is available [here](#) and/or [here on Google Scholar](#). Many of these papers are available directly from <http://physics.carleton.ca/~drogers/pubs/papers/>.

Summary

Papers in refereed journals: ~164

Chapters in Books: 15

Books edited: 2

Full papers in refereed proceedings: 9

Extended abstracts in proceedings: 30

Internal Reports: 100 (includes EGS4, EGSnrc and BEAM User Manuals)

Other science based publications: 6 (eg Point Counterpoint, Physics in Canada articles)