

Carleton University med phys grad student publications and presentations

(July 1, 2023 to June 30th, 2024)

Names of Carleton medical physics student authors of publications and presentations from MSc or PhD thesis work are in **bold**. In addition, author names are in ***bold italic*** for biomedical engineering MSc or PhD thesis work done as a graduate student in Physics.

Journal Publications (alphabetic by first author)

E. Fletcher, F. Ballester, L. Beaulieu, H. Morrison, A. Poher, M. Rivard, R. Sloboda, J. Vijande and R.M. Thomson. Generation of 3D dosimetric reference datasets for COMS eye plaque brachytherapy using model-based dose calculations. *Med. Phys.*, 51, 694-706 (2024).
<https://doi.org/10.1002/mp.16721>

A. Jabbarpour, S. Ghassel, J. Lang, E. Leung, G. Le Gal, R. Klein and E. Moulton. The past, present, and future role of artificial intelligence in ventilation/perfusion scintigraphy: a systematic review. *Seminars in Nuclear Medicine*, 53, 752-765 (2023).
<https://doi.org/10.1053/j.semnuclmed.2023.03.002>

I. Mansour and R.M. Thomson. Haralick texture analysis for microdosimetry: Characterization of Monte Carlo generated 3D specific energy distributions. *Phys. Med. Biol.*, 68, 185003 (15 pages) (2023).
<https://doi.org/10.1088/1361-6560/acf183>

S. Ouellet, Y. Lemarechal, F. Berumen Murillo, M.C. Lavallee, E. Vigneault, A.G. Martin, W. Foster, R.M. Thomson, P. Despres, and L. Beaulieu. A Monte Carlo dose recalculation pipeline for durable datasets: An I-125 LDR prostate brachytherapy use case. *Phys. Med. Biol.*, 68, 235001 (14 pages) (2023).
<https://doi.org/10.1088/1361-6560/ad058b>

M. Shiha, J.E. Cygler, R. MacRae and E. Heath. 4D Monte Carlo dose reconstructions using surface motion measurements. *Physica Medica*, 114, 103135 (8 pages) (2023).
<https://doi.org/10.1016/j.ejmp.2023.103135>

Conference Proceedings and Presentations (presenting author underlined)

17th International Conference for Radiation Research: August 27-30, 2023, Montreal.

E.M. Fletcher and R.M. Thomson,

A framework for heterogeneous multiscale Monte Carlo modelling in radiation medicine,

Oral presentation

Joint Scientific Meeting of the Canadian Association of Radiation Oncologists and the Canadian Organization of Medical Physicists: September 20-23, 2023. Montreal.

N. Moghadam, C. Zhang, S. Ouellet, D. McKeown, J. Cygler, M. Hilts, L. Beaulieu, and R.M. Thomson

Commissioning an open-source Monte Carlo code for low dose rate brachytherapy dose evaluation,

Oral presentation

S. Ouellet, Y. Lamarechal, F. Berumen Murillo, M-C. Lavallee, E. Vigneault, A-G. Martin, W. Foster, R.M. Thomson, P. Despres, and L. Beaulieu.

Large-scale retrospective MC dose recalculation for permanent implant prostate brachytherapy,

Poster presentation

M. Shiha, E. Heath and E. Vandervoort

An Investigation into the Benefit of Using a Higher Threshold of Correctible Rotations in Cyberknife Treatments,

Poster presentation

E. Fletcher, F. Ballester, L. Beaulieu, H. Morrison, A. Poher, M. Rivard, R. Sloboda, J. Vijande, and R.M. Thomson,

Development of test cases for comparisons of model-based dose calculations in low-energy brachytherapy,

Poster presentation.

International Society for Hip Preservation Annual Scientific Meeting: Oct 5-7, 2023, Cape Town, South Africa

M. Sisson, G. Melkus, K.S. Rakhra, R. Taylor, K. Dinelle, S. Dinning and **P.E. Beaulé**,

Evaluation of bone turnover and cartilage proteoglycan content in cam morphology and healthy controls using PET-MRI,

Oral presentation

IEEE Nuclear Science Symposium and Medical Imaging Conference: Nov 4-11, 2023, Vancouver, BC.

T. Clark, R. Huber, R. Clackdoyle and R.G. Wells,
Applying Exponential Data Consistency Conditions in SPECT with Multiple Activity Regions,
Poster presentation

T. Clark, R. Clackdoyle and R.G. Wells,
The Sensitivity of Exponential Data Consistency Condition-based Attenuation Map Alignment to Mismatched Attenuation Maps,
Poster presentation

D.J. Malenfant and R.G. Wells,
Data-driven respiratory motion correction of cardiac SPECT using a convolutional neural network,
Poster presentation

Orthopaedic Research Society Annual Meeting: Feb 2-6, 2024, Long Beach, CA.

M. Sisson, G. Melkus, K.S. Rakhra, R. Taylor, K. Dinelle, S. Dinning and P.E. Beaulé
Evaluation of bone remodeling and cartilage proteoglycan content in cam impingement and healthy controls using PET-MRI,
Poster presentation

The 5th Geant4 International User Conference at the Physics - Medicine - Biology frontier: March 27-29, 2024, Osaka, Japan.

D. Gunasekara, R.C. Wilkins and L.A. Beaton-Green,
Modelling of Chromosome Aberrations to Simulate Biodosimetry Dose Calibration Curves,
Oral presentation

SPIE 2024 Defense and Commercial Sensing, Anomaly Detection and Imaging with X Rays: April 24-25, 2024, National Harbor, Maryland USA.

D.C. Kemdirim and P.C. Johns,
Spectrum optimization for x-ray dual-mode imager comprising radiography and coherent scatter,
Oral presentation

<https://dx.doi.org/10.1117/12.3005049>

Annual meeting of the Microscopy Society of Canada: June 4-7, Ottawa, ON.

T. Buragina, **J. Gagnon**, H. Allen, N. Nazemof, P. Kumarathasan and S. Murugkar,
Application of multimodal coherent Raman microscopy for label-free investigation of
nanoparticle uptake inside cells,
Oral presentation

COMP Annual Scientific Meeting: June 5-8, 2024, Regina, SK.

V. Howard, J. Renaud, E. Heath and B. Muir,
A step toward clinical translation: Developing a robust thermal calibration methodology for
pyroelectric dosimeters,
Oral presentation

A. Haidari, D. Granville and E. Ali,
A deep learning pipeline for real-time conformal palliative radiotherapy of spine metastases,
Oral presentation

C. McNairn, **P. Pasricha**, W. Gao, A. Payne, E. Cassol, V. Chauhan, S. Dang, J.L. Andrews, A.
Jirasek, B. Muir, R.M. Thomson and S. Murugkar,
Point-scan Raman spectroscopy: A technique for high-spatial resolution radiation dosimetry,
Oral presentation

M. Shiha, E. Heath and E. Vandervoort,
Modelling intra-fraction motion and delivery errors in spine SBRT using log files,
Oral presentation

F. Akbari, **S. Ouellet**, N. Moghadam, V. Peppas, S. Oliver, V. Gimenez-Alventosa, L. Beaulieu, J.
Vijande and R.M. Thomson,
Generation of 3D reference dosimetric datasets towards adoption of model-based dose
calculations for permanent implant prostate brachytherapy,
Oral presentation

P. Pasricha, **C. McNairn**, B. Muir, W. Gao, A. Payne, E. Cassol, V. Chauhan, S. Dang, A. Jirasek,
J.L. Andrews, S. Murugkar and R.M. Thomson,
Shining light on microdosimetry: A novel system for micron-scale analysis of energy deposition,
Oral presentation

M. McEwen, **I. El Gamal** and J. Dessureault,
Validation of A Novel Calorimeter Design for Synchrotron Produced X-ray Beams,
Oral presentation

Society of Nuclear Medicine and Molecular Imaging Annual Meeting: June 8-11, 2024, Toronto, ON

A. Jabbarpour, R. Klein, R.A. Aghdam, Z.F. Shirazi, N. Hejji, S. AlSulaiman, E. Moulton, W. Zeng, Y. Foufa, Y.A. Lucinian and A. Couture,

A streamlined workflow for crowdsource annotation of medical images,

Poster presentation

M. Ansari, **A. Jabbarpour**, E. Moulton and R. Klein,

Comparison of Spatial Normalization Strategies in Perfusion Scintigraphy for Patient-Specific Registration to a Bronchopulmonary Segment Atlas,

Poster presentation