Physics in Medicine and Biology

Volume 60       Number 13       7 July 2015

SPECIAL SECTION: SELECTED PAPERS FROM THE FIFTH INTERNATIONAL WORKSHOP ON MONTE CARLO TECHNIQUES IN MEDICAL PHYSICS

EDITORIAL

4947 Special section: Selected papers from the Fifth International Workshop on Monte Carlo Techniques in Medical Physics
Philippe Després, Luc Beaulieu, Issam El Naqa and Jan Seuntjens

SPECIAL SECTION PAPERS

4951 Comparison between EGSnrc, Geant4, MCNP5 and Penelope for mono-energetic electron beams
John Paul Archambault and Ernesto Mainegra-Hing

4963 Lorentz force correction to the Boltzmann radiation transport equation and its implications for Monte Carlo algorithms
Hugo Bouchard and Alex Bielajew

4973 Fast GPU-based Monte Carlo simulations for LDR prostate brachytherapy
Éric Bonenfant, Vincent Magnoux, Sami Hissoiny, Benoît Ozell, Luc Beaulieu and Philippe Després

4987 GGEMS-Brachy: GPU GEant4-based Monte Carlo simulation for brachytherapy applications
Yannick Lemaréchal, Julien Bert, Claire Falconnet, Philippe Després, Antoine Valeri, Ulrike Schick, Olivier Pradier, Marie-Paule Garcia, Nicolas Boussion and Dimitris Visvikis

5007 A study of potential numerical pitfalls in GPU-based Monte Carlo dose calculation
Vincent Magnoux, Benoît Ozell, Éric Bonenfant and Philippe Després

5019 Improved efficiency in Monte Carlo simulation for passive-scattering proton therapy
J Ramos Ménédez, J Perl, J Schümann, J Shin, H Paganetti and B Faddegon

5037 A framework for implementation of organ effect models in TOPAS with benchmarks extended to proton therapy
J Ramos-Méndez, J Perl, J Schümann, J Shin, H Paganetti and B Faddegon

5053 Extension of TOPAS for the simulation of proton radiation effects considering molecular and cellular endpoints
Lisa Polster, Jan Schuemann, Ilaria Rinaldi, Lucas Burigo, Aimee L McNamara, Robert D Stewart, Andrea Attili, David J Carlson, Tatsuhiko Sato, José Ramos Méndez, Bruce Faddegon, Joseph Perl and Harald Paganetti

5071 Developing a phenomenological model of the proton trajectory within a heterogeneous medium required for proton imaging
Charles-Antoine Collins Fekete, Paul Doolan, Marta F Dias, Luc Beaulieu and Joao Seco

PAPERS

5083 Optimization and comparison of simultaneous and separate acquisition protocols for dual isotope myocardial perfusion SPECT
Michael Ghaly, Jonathan M Links and Eric C Frey

5103 An extended analytical approach for diffuse optical imaging
H Erkol, F Nouizi, M B Unlu and G Gulsen

(Continued overleaf)

Bibliographic codes
CODEN: PHMBA7 60 (13) 4947–5358 (2015) ISSN: 0031-9155
5123  Staging of cervical cancer based on tumor heterogeneity characterized by texture features on 18F-FDG PET images
Wei Mu, Zhe Chen, Ying Liang, Wei Shen, Feng Yang, Ruwei Dai, Ning Wu and Jie Tian

5141  Analytical calculation of the lower bound on timing resolution for PET scintillation detectors comprising high-aspect-ratio crystal elements
Joshua W Cates, Ruud Vinke and Craig S Levin

5163  Evaluation of a cone beam computed tomography geometry for image guided small animal irradiation
Yidong Yang, Michael Armour, Ken Kang-Hsin Wang, Nishant Gandhi, Iulian Jordachita, Jeffrey Siewerdsen and John Wong

5179  A modular approach to intensity-modulated arc therapy optimization with noncoplanar trajectories
Dávid Papp, Thomas Bortfeld and Jan Unkelbach

5199  A framework for automated contour quality assurance in radiation therapy including adaptive techniques
M B Altman, J A Kavanaugh, H O Wooten, O L Green, T A DeWees, H Gay, W L Thorstad, H Li and S Mutic

5211  Predicting location of recurrence using FDG, FLT, and Cu-ATSM PET in canine sinonasal tumors treated with radiotherapy
Tyler Bradshaw, Rau Fu, Stephen Bowen, Jun Zhu, Lisa Forrest and Robert Jeraj

5225  Automatic indicator dilution curve extraction in dynamic-contrast enhanced imaging using spectral clustering
Salvatore Saporito, Ingeborg HF Herold, Patrick Houthuizen, Harrie CM van den Bosch, Hendrikus HM Korsten, Hans C van Assen and Massimo Mischi

5241  Patient-dependent count-rate adaptive normalization for PET detector efficiency with delayed-window coincidence events
Xiaofeng Niu, Hongwei Ye, Ting Xia, Evren Asma, Mark Winkler, Daniel Gagnon and Wenli Wang

5261  Enhancing spatial resolution of 18F positron imaging with the Timepix detector by classification of primary fired pixels using support vector machine
Qian Wang, Zhen Liu, Sibylle I Ziegler and Kuangyu Shi

5279  Simultaneous identification of elastic properties, thickness, and diameter of arteries excited with ultrasound radiation force
Parikshit Dutta, Matthew W Urban, Olivier P Le Maître, James F Greenleaf and Wilkins Aquino

5297  Impact of high 131I-activities on quantitative 124I-PET
P E N Braad, S B Hansen and P F Høilund-Carlsen

5313  The collapsed cone algorithm for 192Ir dosimetry using phantom-size adaptive multiple-scatter point kernels
Asa Carlsson Tedgren, Mathieu Plamondon and Luc Beaulieu

5325  Quantitative proton imaging from multiple physics processes: a proof of concept
C Bopp, R Rescigno, M Rousseau and D Brasse

5343  Impact of detector design on imaging performance of a long axial field-of-view, whole-body PET scanner
S Surti and J S Karp