

Pantelis Karaiskos, M.Sc., Ph.D.

Current Position

Associate Professor, Medical Physics Laboratory Medical School, National and Kapodistrian University of Athens

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Education

2001: Ph.D, University of Athens
1994: MSc in Medical Physics, University of Aberdeen
1992: Physics Degree, University of Athens

Employment

2011 - : Associate Professor: Medical Physics Laboratory, Medical School, University of Athens.
2006-2011: Assistant Professor: Medical Physics Laboratory, Medical School, University of Athens.
2006- : Consultant Medical Physicist, Medical Physics and Gamma Knife Department, Hygeia Hospital, Athens, Greece
1999– 2005: Medical Physicist: Medical Physics Department, Hygeia Hospital, Athens and research fellow: Nuclear & Particle Physics Sec., Physics Dept., University of Athens
1996– 1999: Research assistant (under paid contract): Medical Physics group, Nuclear & Particle Physics Sec., Physics Dept., University of Athens.

Research interests

- Experimental dose verification in modern radiation therapy techniques, such as gamma knife radiosurgery, Intensity Modulated Radiation Therapy (IMRT) and high dose rate brachytherapy
- Monte Carlo modelling of radiation sources for the generation of dosimetry data for use in radiation therapy treatment planning systems and development of analytical dosimetry models guided by Monte Carlo simulation
- Comparison and evaluation of modern radiotherapy techniques using physical and biological parameters
- Monte Carlo simulations of charge particles for radiotherapy purposes

Reviewer

- Medical Physics (also Associate Editor)
- Physics in Medicine & Biology
- Radiotherapy and Oncology
- Journal of Applied Clinical Medical Physics

Participation in Research Projects

- “Three dimensional experimental and analytical dosimetry for quality assurance in modern radiotherapy applications” - Greek–Czech collaborative project General Secretariat of Research and Technology 2005 -2007
- “Development of polymer gel dosimeters for clinical use in radiotherapy applications” - Greek–Poland collaborative project, General Secretariat of Research and Technology (2004 -2006)
- “Development and application of research dosimetry techniques for quality assurance in clinical radiotherapy applications” – Cyprus Research Promotion Foundation (2008-2010)
- “Validation of Acuros-based dosimetry calculations in brachytherapy, Varian Oncology Systems (Palo Alto, USA) (2008-2010)
- “Development of dosimetric methods in modern radiation medical applications” Greek National Central Council of Health (2009 -)
- Dosimetry in stereotactic radiotherapy - Greek Ministry of National Education and Religious Affairs (project “Irakleitos”) (2001-2004)
- Dosimetry in medical applications”– Special Research Account of the University of Athens (ELKE 70/4/4285, 70/4/3312, 70/4/3320) (1996 -)
- “Development of polymer gel dosimeters” - Greek General Secretariat of Research and Technology (P D . 70/3/5071) (1999 – 2001)
- ITTUG “Development of a brachytherapy treatment planning system” - European Commission Grant IST-1999-10618 (2000 –2001) “Energy Amplifier” and “TARC CERN projects” – European Organization for Nuclear Research (Contract F141-CT96-009) (1996-1999)

Teaching responsibilities

- Radiation Protection: IAEA Regional postgraduate courses on radiation protection and the safety of radiation sources
- Medical Physics: undergraduate Medical students
- Radiotherapy: postgraduate Medical Physics students
- Supervisor in 12 MSc thesis in Medical Physics
- Supervisor in 5 PhD thesis in Medical Physics

Published work

- 61 publications in Peer Reviewed, International Journals (IF=154, h-index=18, citations=615, Source: Scopus)
- 47 presentations in international conferences and 30 invited talks in national and international conferences-meetings

List of selected publications (2005 -)

- Kantemiris I, Karaiskos P, Papagiannis P, Angelopoulos A., “Dose and dose averaged LET comparison of ^1H , ^4He , ^6Li , ^8Be , ^{10}B , ^{12}C , ^{14}N , and ^{16}O ion beams forming a spread-out Bragg peak”, Med Phys. 38, 6585-91 (2011)
- Petrokokkinos L, Zourari K, Pantelis E, Moutsatsos A, Karaiskos P, Sakelliou L, Seimenis I, Georgiou E and Papagiannis P, “Dosimetric accuracy of a deterministic radiation transport based ^{192}Ir brachytherapy treatment planning system. Part II: Monte Carlo and experimental verification for multiple source dwell position plans employing shielded applicators”, Med. Phys. 38, 1981-1992 (2011)
- Chatzigiannis C, Lymperopoulou G, Sandilos P, Dardoufas C, Yakoumakis E, Georgiou E and Karaiskos P, “Dose perturbation in the radiotherapy of breast cancer patients implanted with the MAGNA SITETM: A Monte Carlo study”, J Appl Clin Med Phys 19, 3295-304 (2011)

- Tzikas A, Karaiskos P, Papanikolaou N, Sandilos P, Koutsouveli E, Lavdas E, Scarleas C, Dardoufas K, Lind BK, Mavroidis P “Investigating the Clinical Aspects of Using CT vs. CT-MRI Images During Organ Delineation and Treatment Planning in Prostate Cancer Radiotherapy”, *Technol Cancer Res Treat.* 10, 231-42 (2011)
- Pantelis E, Moutsatsos A, Zourari K, Kilby W, Antypas C, Papagiannis P, Karaiskos P, E Georgiou, W Kilby, C. Antypas and L. Sakelliou, “On the implementation of a recently proposed dosimetric formalism to a robotic radiosurgery system”, *Med Phys* 37, 2369-2379 (2010)
- Bassler N, Kantemiris I, Karaiskos P, Engelke J, Holzscheiter M H, “Comparison of optimized single and multifield irradiation plans of antiproton, proton and carbon ion beams” *Radioth Oncol* 95, 87-93 (2010)
- Kantemiris I, Angelopoulos A, Bassler N, Giokaris N, Holzscheiter M H, Karaiskos P, Kalogeropoulos, T.E., “Real-time imaging for dose evaluation during antiproton irradiation, *Phys Med Biol* 55, N123-N131 (2010)
- Zourari K, Pantelis E, Moutsatsos A, Petrokokkinos L, Karaiskos P, Sakelliou L, Georgiou E, Papagiannis P, Dosimetric accuracy of a deterministic radiation transport based ¹⁹²Ir brachytherapy treatment planning system. Part I: single sources and bounded homogeneous geometries, *Med Phys* 37, 649-61 (2010)
- Moutsatsos A, Petrokokkinos L, Karaiskos P, Papagiannis P, Georgiou E, Dardoufas K, Sandilos P, Torrens M, Pantelis E, Kantemiris I, Sakelliou L and Seimenis I, “Gamma Knife output factor measurements using VIP polymer gel dosimetry”, *Med. Phys.* 36, 4277-4287 (2009)
- Pantelis E, Antypas C, Petrokokkinos L, Karaiskos P, Papagiannis P, Kozicki M, Georgiou E, Sakelliou L, Seimenis I, “Dosimetric characterization of CyberKnife radiosurgical photon beams using polymer gels,” *Med. Phys.* 35, 2312-2320 (2008).
- Paschalis T, Sandilos P, Tatsis E, Karaiskos P, Antypas C, Chatzigiannis C, Dardoufas K, Georgiou E, Vlachos L, “ Dosimetric evaluation of a new collimator insert system for stereotactic radiotherapy,” *Br. J. Radiol.* 80, 446-451 (2007)
- Pantelis E, Baltas D, Georgiou E, Karaiskos P, Lymperopoulou G, Papagiannis P, Sakelliou L, Seimenis I, Stiliaris E, “Dose characterization of the new Bebig IsoSeed® I25.S17 using polymer gel and MRI,” *NIM A* 569, 529-532 (2006).
- Sandilos P, Tatsis E, Vlachos L, Karaiskos P, Georgiou E, Kipouros P, Torrens M, Angelopoulos A. “Mechanical and dose delivery accuracy evaluation in radiosurgery using polymer gels” *J Appl Clin Med Phys.* 28, 13-21 (2006).
- Papagiannis P, Pantelis E, Karaiskos P, Angelopoulos A, Sakelliou L, Stiliaris S, Baltas D, and Seimenis I, “Polymer gel dosimetry for the TG-43 dosimetric characterization of a new ¹²⁵I interstitial brachytherapy seed” *Phys. Med. Biol.*, 51, 2101–2111 (2006).
- Papagiannis P, Karaiskos P, Kozicki M, Rosiak J M, Sakelliou L, Sandilos P, Seimenis I and Torrens M “Three-dimensional dose verification of the clinical application of gamma knife stereotactic radiosurgery using polymer gel and MRI”, *Phys. Med. Biol.* 50, 1979 – 1990 (2005)
- Karaiskos P, Petrokokkinos L, Tatsis E, Angelopoulos A, Baras P, Kozicki M, Papagiannis P, Rosiak J M, Sakelliou L, Sandilos P and Vlachos L. “Dose verification of single shot gamma knife applications using VIPAR polymer gel and MRI” , *Phys. Med. Biol.* 50, 1235–1250 (2005).
- G. Lymperopoulou, P. Papagiannis, L. Sakelliou, P. Karaiskos, P. Sandilos, A. Przykutta and D. Baltas “Monte Carlo and thermoluminescence dosimetry of the new IsoSeed® model I25.S17 ¹²⁵I interstitial brachytherapy seed”, *Med. Phys.* 32, 3313 – 3317 (2005)
- E. Pantelis, P. Papagiannis, P. Karaiskos, A. Angelopoulos and G. Anagnostopoulos “The effect of finite patient dimensions and tissue inhomogeneities on dosimetry planning of ¹⁹²Ir HDR brachytherapy: a Monte Carlo dose verification study”, *Int. J. Radiat. Oncol. Biol. Phys.* 61, 1596-1602 (2005).

- Sandilos P, Seferlis S, Antypas C, Karaiskos P, Dardoufas C, Vlahos L, “Technical note: evaluation of dosimetric performance in a commercial 3D treatment planning system,” Br J Radiol. 78, 899-905 (2005).