Dr. Ioanna Kyriakou

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EDUCATION

- **PhD in Physics, Department of Physics, Lancaster University, UK (2005)**
  Condensed Matter Theory Group (Prof. C.J. Lambert) in collaboration
  with QinetiQ Sensors & Electronics Division, Malvern, UK (Prof. J.H. Jefferson)
  Dissertation: "Coherent Transport Phenomena in Semiconductor Nanostructures"
- **Degree in Physics, Physics Department, University of Ioannina, Ioannina, Greece (2000)**

POSITIONS AND EMPLOYMENT

2021-present	Assistant Professor Medical Physics, Department of Medicine, University of Ioannina, Greece
2013-2021	Research Associate Medical Physics Lab, Department of Medicine, University of Ioannina, Greece
2008-2012	Post-doctoral fellow Medical Physics Lab, Department of Medicine, University of Ioannina, Greece
2005-2008	Laboratory Teaching Associate MSc program in "New Technologies and Research in Physics Education" Physics Department, University of Ioannina, Ioannina, Greece
2005-2009	Instructor Department of Informatics and Telecommunications, University of Ioannina, Greece

PERSONAL STATEMENT

My research background and interests fall at the interface of medical physics and materials science. My research over the last 13 years relates to the interaction of ionizing radiation (mainly low-energy charged particles) with atoms and molecules in the condensed phase in both bulk and low-dimensional systems. Specifically, I have been developing practical semi-empirical models of the energy-loss function for calculating ionization and excitation cross sections for electrons and ions over a wide energy range in various materials of biomedical interest such as water, proteins, DNA, carbon nanotubes, and gold nanoparticles. Such physics models and cross sections represent the main input to Monte Carlo radiation transport simulations in condensed media and to the calculation of fundamental dosimetry-related quantities, like stopping-power, from first-principles. I am a member of the GEANT4 collaboration and its Low-Energy Electromagnetic Physics Working Group, as well as, Steering Committee member (and Physics Activity representative) of the GEANT4-DNA project (CERN/CNRS) which aims to the development of a low-energy extension of the general-purpose and open-access GEANT4 simulation toolkit (of CERN) for applications in the field of Medical Physics. I am also participating in various funded projects (by the European Space Agency, the Australian Research Council, and the European Union) on Monte Carlo simulations of energy deposition at the micro- and nano-meter scale by different ionizing radiations for various applications, including theoretical estimates of the relative biological effectiveness (RBE), mechanistic studies of radiation effects at the DNA and cellular level, and proton depth-dose profiles.

OTHER SCIENTIFIC APPOINTMENTS, PROFESSIONAL MEMBERSHIPS AND HONORS

2019-present Associate Editor: Medical Physics (AAPM)
https://www.aapm.org/org/structure/default.asp?committee_code=MPBAE
https://aapm.onlinelibrary.wiley.com/hub/journal/24734209/about/editorial_board

2018-present Member, G4-Med: GEANT4 Medical Simulation Benchmarking Group (Coordinated by University of Wollongong, Australia & CIEMAT, Madrid, Spain)
https://twiki.cern.ch/twiki/bin/view/Geant4/G4MSBG

2018-present Member, SDD: Standard for DNA Damage Collaboration (Coordinated by MGH & Harvard Medical School, USA)
https://standard-for-dna-damage.readthedocs.io/en/latest/index.html

2016-present Steering Committee Member & Physics activity representative, GEANT4-DNA Collaboration (Coordinated by CNRS, France).
http://geant4-dna.org/

2016-present Member, GEANT4 Collaboration (Coordinated by CERN, Switzerland)
https://geant4.web.cern.ch/collaboration/members

2013-present Member, GEANT4 Electromagnetic (EM) Physics Working Group (Coordinated by CERN, Switzerland, and CNRS, France)
https://geant4.web.cern.ch/collaboration/working_groups/electromagnetic

ONGOING OR RECENT PROJECTS & GRANTS

Title: Monte Carlo mechanistic investigation of physical and chemical processes induced by gold nanoparticles in cellular irradiation
Source: French National Center for Scientific Research (CNRS)
Role: Co-Principal Investigator
Duration: 2016-2018

Title: G4-NANO: development of a specialized approach to understand the physics foundation of radiosensitisation of gold nanoparticles
Source: Australian Research Council
Role: Partner Investigator
Duration: 2017-2019

Title: Geant4-based particle simulation facility for future science mission support
Source: European Space Agency (ESA)
Role: Project Team Member
Duration: 2018-2022

Title: NANOGOLD II
Source: French National Center for Scientific Research (CNRS)
Role: Co-Principal Investigator
Duration: 2019-2021

Title: Microdosimetry using the Geant4-DNA Monte Carlo code for RBE calculations of non-conventional radiations in radiotherapy
Source: Greek Ministry of Development and Investments, ESPA Funding Program: Research Support with emphasis on New Researchers
Role: Co-Principal Investigator
Duration: 2020-2021

Title: Multi-scale open-source radiation effect platform for space radiation protection
Source: European Space Agency (ESA)
Role: Co-Principal Investigator, Work Package coordinator
Duration: 2021-2023

PUBLICATIONS

Papers in peer-review journals (with impact factor):	**61**
Presentations (oral and/or poster) in International Conferences:	**37**

SCOPUS	1710 citations	h-index = 24	(10/6/2022)
GoogleScholar	2285 citations	h-index = 26	(10/6/2022)

Online research profiles

https://orcid.org/0000-0003-2105-4078
https://scholar.google.com/citations?user=OnDGHiwAAAAJ&hl=el
https://www.scopus.com/authid/detail.uri?authorId=23110783400