

LOREDANA G. MARCU, PhD

Loredana Marcu is currently a Professor of Medical Physics at the University of Oradea, Romania and Adjunct Professor at the School of Health Sciences, University of South Australia. Her current interests include modelling of tumour growth and behaviour during treatment, the investigation of the role of Positron Emission Tomography in evaluating tumour hypoxia, the risk of second cancer after radiotherapy, the impact of cancer stem cells on tumour response to radiotherapy, and targeted particle therapies. Currently she is the president of the Romanian College of Medical Physicists.



PERSONAL DETAILS

Current position:	Professor of Medical Physics
Work address:	Department of Physics, Faculty of Informatics & Science 1 Universitatii street, University of Oradea, 410087, Romania
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QUALIFICATIONS

PhD in Medical Physics (2000-2005)

University of Adelaide/ Royal Adelaide Hospital, Australia

Masters Degree in Teachers Training (2007 - 2008)

University of Oradea, Romania

Masters Degree in Applied Physics (1994 - 1995)

West University of Timisoara, Romania

Honours Degree in Physics (1989 - 1994)

West University of Timisoara, Romania

EMPLOYMENT HISTORY

University of Oradea, Romania (Oct 2014-present)

Professor - Faculty of Science, Department of Physics

University of South Australia, Australia (April 2017-present)

Adjunct Professor – School of Health Sciences

University of Oradea, Romania (2012-Sept 2014)

Associate Professor - Faculty of Science, Department of Physics

Royal Adelaide Hospital, June 2010 – August 2012

Senior Medical Physicist - Department of Medical Physics

TEAP preceptor (Training, Education and Accreditation Program in Medical Physics)

University of Oradea, Romania

Associate Professor - Faculty of Science, Department of Physics (2009-2010)

Senior Lecturer - Faculty of Science, Department of Physics (2007-2009)

Royal Adelaide Hospital

Senior Medical Physicist - Department of Medical Physics (2005-2007)

Medical Physicist – Department of Medical Physics (2002-2005)

University of Adelaide

Affiliate Senior Lecturer - School of Chemistry and Physics (Aug 2010- April 2017)

Affiliate Lecturer - School of Chemistry and Physics (2005- Aug 2010)

Casual Lecturer – School of Chemistry and Physics (2000-2005)

University of Oradea, Romania, 1995-1999

Lecturer – Department of Physics

SUMMARY OF RESEARCH AND TEACHING RESULTS

- Over 180 publications and conference presentations
- 15 books/book chapters with ISBN
- Over 950 citations in international journals, books and postgraduate theses
- h-index: 14 (Web of Science); 18 (Google Scholar)

INVITED SPEAKER / VISITING PROFESSOR

- Keynote Speaker - Engineering & Physical Sciences in Medicine (EPSM) Conference, Adelaide, 29-31 Oct (2018)
- Invited Speaker – National Conference of Biophysics & Radiobiology, Bucharest, 7-10 Sept (2018)
- Invited Speaker - The 2nd European Congress of Medical Physics (ECMP), Copenhagen, 23-25 Aug (2018)
- Visiting Professor - School of Health Sciences, University of South Australia, 1-16 Sept (2017)
- Invited Speaker - TIM17 Physics Conference, Timisoara, Romania, 25-27 May (2017)
- Visiting Professor - Karolinska Institutet, Stockholm, Sweden, 18-24 Sept (2016)
- Invited Speaker - Workshop: Risk of secondary cancer following radiotherapy, Stockholm, 8-9 Sept (2016)
- Visiting Professor - Sansom Institute for Cancer Research, University of South Australia, 21 May-4 June (2016)
- Invited Speaker – Australasian College of Physical & Engineering Sciences in Medicine Meeting, Perth, Australia, 17-22 May (2015)
- Invited Speaker – EPSM Summer School on Functional Imaging, Darwin, Australia, 12-13 Aug (2011)

ACADEMIC TEACHING

UNDERGRADUATE

- Detectors, dosimetry and radioprotection
- Introduction to radiotherapy
- Radioactivity
- Radioactive pollution
- Aspects of basic physics

POSTGRADUATE

- Radiobiology
- Advanced radiotherapy
- Quality assurance in radiology and radiotherapy
- Radioactive tracers in physics and biology

GENERAL

- Developing new tutorial topics and tutoring within the 'Radiobiology, Protection and Epidemiology' Masters in Medical Physics course (University of Adelaide)
- Developing a web-based course on Radiobiology and Radiation Protection (University of Adelaide)
- Contributing to the development of 'Aspects of biophysics' lecture for the Dental students

- Conducting seminars and laboratories for Physics and Engineering students in Mechanics, Thermodynamics, Electricity (University of Oradea)
- Developing new seminar / lab topics and writing textbooks and laboratory guidelines
- Developing physics projects and supervising undergraduate students in achieving project goals.
- Research grant writing (University of Oradea, Romania)

STUDENT PROJECT SUPERVISION

- 5 PhD students (School of Physical Sciences / University of Adelaide; Division of Health Sciences / University of South Australia; Faculty of Physics / West University of Timisoara)
- 25 MSc students (Faculty of Science, University of Oradea, Romania)
- Numerous honours, BSc students

CLINICAL EXPERIENCE

- HDR & LDR brachytherapy
- Stereotactic radiotherapy/surgery
- Acceptance testing and commissioning of radiotherapy equipment
- Quality assurance of radiotherapy equipment

PROFESSIONAL ACTIVITIES

COMMITTEES

- President of the Romanian College of Medical Physicists (Jan 2018 – present)
- Vice-chair of the European Matters Committee within EFOMP (Jan 2020-)
- Vice-chair of Women in Medical Physics and Biomedical Engineering Task Group, IUPESM (International Union for Physical and Engineering Sciences in Medicine) (March 2020 -)
- Member of the National Scientific Council for Attestation of University Titles, Diplomas and Certificates (CNATDCU), Physics Committee (2016-2020)
- Member of Women in Medical Physics and Biomedical Engineering Task Group, IUPESM (International Union for Physical and Engineering Sciences in Medicine) (from 2015)
- EFOMP National Representative for Romania (2015-present)
- IOMP National Representative for Romania (2016-present)
- Vice-president of the Romanian College of Medical Physicists (2012-2017)

CONFERENCE ORGANISATION

- Member of the Scientific Board of *The 2nd European Congress of Medical Physics*, Copenhagen, Denmark, 23-25 Aug. 2018
- Organiser of the *14th National Conference of Romanian Medical Physicists*, Oradea, 4-6 Nov. 2016
- Organiser of the International Day of Medical Physics Symposia, Oradea, University of Oradea, Nov 2013, 2014, 2015, 2016
- Member of the Organizing Committee of *The 13th National Conference of Romanian Medical Physicists*, Cluj-Napoca, 7-8 Nov. 2015
- Member of the International Advisory Committee of the *World Congress on Medical Physics* June 2015, Toronto, Canada
- Organiser of the CPD course *The Physics of Radiological Imaging*, Baile Felix, 19-21 Sept. 2013
- Member of the Organizing Committee of *The 4th MOT Meeting (Modelling of tumour growth and development)*, Adelaide, 2-4 August 2012
- Scientific chair of the *EPSM-ABEC 2011* conference, Darwin, Australia, 14-18 August 2011
- Member of the Scientific Organizing Committee of the *Summer School on Functional Imaging*, Darwin, Australia, 12-13 August 2011
- Member of the Scientific Organizing Committee of the *EPSM 2005, Adelaide*, October 2005
- Member of the Organizing Committee of *The 2nd MOT Meeting (Modelling of tumour growth and development)*, Adelaide, May 2004.

GRANTS AND THESES EVALUATION

- Expert evaluator for the European Science Foundation (from 2019)
- Expert evaluator for the National Fund for Scientific and Technological Development (FONDECYT) (from 2019)
- Expert evaluator for the Czech Science Foundation (from 2014)
- Expert Evaluator UEFISCDI (from 2011)
- Examiner of Postgraduate Thesis, University of Adelaide (2011)
- Assessor of Research Grant Proposal for The Government of Western Australia, Department of Health (2011)

INTERNATIONAL JOURNALS BOARD

- Associate editor for “Physica Medica: European Journal of Medical Physics” (2019-)
- Guest editor, special issue “Physica Medica - ECMP 2018”
- Guest editor, special issue “Computational and Mathematical Methods in Medicine”

- Referee for "Physics in Medicine and Biology" (IOP); "Medical Hypotheses", "Journal of Theoretical Biology", "Physica Medica" (Elsevier); "The British Journal of Radiology"; "Australasian Physical and Engineering Sciences in Medicine" (Springer).

PROFESSIONAL AWARDS AND GRANTS

June 2016	Research Themes Investment Scheme (RTIS) Development Funding, University of South Australia; Project title: Clonogenic Stem Cells in Head and Neck Cancer and Their Impact on Novel Treatment Approaches Based on Patient Stratification and Outcome Optimisation; Experimental and Modelling Investigation – team member.
Oct 2013	Certificate of Merit, University of Oradea, Romania
Sept 2012	Romanian Ministry of National Education Research Grant CNCS-UEFISCDI, PNII-ID-PCE-2012 – project director.
June 2010	'Top 20 researchers of the academic community' award, University of Oradea
Jan 2009	'Physics in Medicine and Biology Highlights of 2008' for outstanding new research: Efficient Monte Carlo modelling of individual tumour cell propagation for hypoxic head and neck cancer, W Tuckwell, E Bezak, E Yeoh and L Marcu, <i>Phys. Med. Biol.</i> 53(17) (7 September 2008) 4489-4507.
Aug 2006	'Boyce Worthley young achiever award' – Australasian College of Physical Scientists and Engineers in Medicine (ACPSEM)
June 2005	CPD funds for overseas conference attendance
Sept 2004	'Eminent scientist of the year 2004' award – International Research Promotion Council
Oct 2003	ACPSEM student night – First prize for the best postgraduate paper presentation
Oct 2002	ACPSEM student night – Second prize for the best postgraduate paper presentation
Sept 2002	ACPSEM travel grant, South Australian branch
Aug 2002	University of Adelaide "Research Abroad Scholarship"
Sept 2001	ACPSEM student night – Prize for the best postgraduate paper presentation
Jan 2000	University of Adelaide Award (PhD scholarship)

MEDIA RELEASE

June 2013 – Talking point: Radio-immunotherapy: attacking cancer from within
 Medical physics website (<http://medicalphysicsweb.org/cws/article/opinion/53719>)

May 2006 - Physicist makes headway on aggressive tumours
 (<http://www.adelaide.edu.au/news/news12042.html>)