Brief CV

Theodora Leventouri

EDUCATION

- Ph.D. Physics, Experimental Condensed Matter Physics, Univ. of Athens, Greece.
- Post Graduate Training: Visiting Research Scientist 1983-84, ORNL (Oak Ridge National Laboratory), X-Rays and Applications Group, USA. Visiting Research Scientist 1998, High Flux Isotope Reactor, Neutron Scattering Section, Solid State Division, ORNL, USA.

ACADEMIC APPOINTMENTS

- 2006-present: Professor, Physics Department, Graduate Faculty, FAU.
- 2010-present: Founding Director, Medical Physics program, FAU.
- 2006-present: Director, Center for Biomedical and Materials Physics (CBAMP).
- 1992-2006: Associate Professor, Physics Department, FAU.
- 1991-92: Adjunct Professor, Physics Department, FAU.
- 1988-91: Associate Scholar Scientist, Physics Department, FAU.
- 1986-92: Associate Professor, Physics Department, University of Athens, Greece.
- 1982-86: Lecturer, Physics Department, University of Athens, Greece.
- 1973-82: Assistant Professor, Physics Department, University of Athens, Greece.

HONORS

- 2019: Fellow of the American Physical Society.
- 2019: Invited member of Sigma Xi, The Scientific Research Honor Society.
- 2016: Legacymakers, 100 Women of Distinction at Florida Atlantic University.
- Fall 2008: Sabbatical, National Technical University of Athens, Greece.
- 2006: Faculty Research Incentive Award, Division of Research, FAU.
- 2003: Charles E. Schmidt College of Science Undergraduate Teaching Award Nominee.
- 2001: Advisor of the Year Award for Eminent Leadership, Multicultural Premed Society.
- Fall 1998: Sabbatical at HFIR of the Oak Ridge National Laboratory.
- 1997: Award for Excellence in Undergraduate Advising.
- 1997: Nomination for the Teacher of the Year award by the students.

PROFESSIONAL ORGANIZATIONS

- American Physical Society (APS)
- Sigma Xi
- Hellenic Physical Society (HPS)
- American Crystallographic Association (ACA)
- Materials Research Society (MRS)
- American Association of University Women (AAUW)
- National Association of Women in Education (NAWE)
- American Association of Physicists in Medicine (AAPM)
- Society of Directors of Academic Medical Physics Programs (SDAMPP)
- Association for Women in Science (AWIS)

RESEARCH INTERESTS
Structure and physical properties of crystalline matter. Experimental methods of study include: x-ray diffraction, neutron scattering, electron microscopy, and magnetic measurements. Medical Physics, Radiation Therapy. Research topics include:

- Crystal structure, microstructure and properties of apatite based natural & synthetic biomaterials. Structure, microstructure and magnetism of alloy catalysts in carbon nanofibers.
- Structure and magnetism of nano-bioceramics.
- Medical Physics: Radiation Therapy
- Preferred orientation, phonons, critical current density of bulk high-superconductors.
- Magnetic transitions in long-range ordered alloys.
- Structure and phonons in colossal magnetoresistance materials (CMR).
- Electronic states of light elements with x-ray Raman spectroscopy.
- Internal strains in solids with the techniques of x-ray crystallography.
- Plasmon excitations in solids using inelastic x-ray scattering.

Refereed Publications
Total: 106.
(1415 Citations Research Gate 4/2021, h Index 14 excluding self-citations)
Selected publications last 5 years

- *Dosimetric comparison of treatment plans computed with Finite Size Pencil Beam and Monte Carlo algorithms using the InCiseT Multileaf collimator equipped CyberKnife® system,* Kalpani Udeni Galpayage, Charles Shang, Theodora Leventouri, J. Medical Physics, JMP_64_19, 2020.
- *A study of wavelet-based denoising and a new shrinkage function for low-dose CT scans*. Mohammadi, Sadegh; Leventouri, Theodora, Biomedical Physics & Engineering Express, BPEX-101275.R2, 2019.
- *Raman and IR study of the effect of Fe substitution in hydroxyapatites and deuterated hydroxyapatite,* A. Antonakos, E. Liarokapis, A. Kyriakou, Th. Leventouri, American Mineralogist **102** 85-91 (2017) DOI: 10.2138/am-2017-5884.
- *A GPU accelerated simulation annealing algorithm for IMRT optimization*, P. Galanakou, T. Leventouri, A. Georgakilas, G. Kalantzis, (IEEE proc. SNPD 2017).
- *Improvement of the fracture toughness of hydroxyapatite (HAp) by incorporation of carboxyl functionalized single walled carbon nanotubes (CfSWCNTs) and nylon,* S.P. Khanal, H. Mahfuz, A.J. Rondinone, Th. Leventouri, Mat Sc Eng C **60**, 204-10, 2016 http://dx.doi.org/10.1016/j.msec.2015.11.030
- *Dosimetric and radiobiological comparison of CyberKnife M6™ InCise multileaf collimator over IRIS™ variable collimator in prostate stereotactic body radiation therapy,* Vindu Kathriarachchi, Charles Shang, Grant Evans, Th. Leventouri, and G. Kalantzis J Med Phys **41**, 135–143 (2016) doi: 10.4103/0971-6203.181638.
- *Investigations of a GPU-based levy-firefly algorithm for constrained optimization of radiation therapy treatment planning*, G Kalantzis, C Shang, Y Lei, T Leventouri, Swarm and Evolutionary Computation **26**, 191-201 (2016).

- *Evaluation of surface dose outside the treatment area for five breast cancer irradiation modalities using thermo-luminescent dosimeters*, Suraj Prasad Khanal, Zoubir Ouhib, Rashmi K Benda, Th. Leventouri, Intern. J. Cancer Therapy and Oncology, **3**, 2015 ISSN 2330-4049.
- *A GPU-based Pencil Beam Algorithm for Dose Calculations in Proton Radiation Therapy*, Georgios Kalantzis, Th. Leventouri, Hidenobu Tachibana, Charles Shang, Int. J. of Networked and Distributed Computing, **3** 243-249, 2015 ISSN: 2211-7946
- *A computational tool for patient specific dosimetry and radiobiological modeling of selective internal radiation therapy with ^{90}Y microspheres*, Georgios Kalantzis, Th. Leventouri, Aditiya Apte, Charles Shang, Applied Radiation and Isotopes, **105**, 123-129, 2015 DOI: 10.1016/j.apradiso.2015.08.009
- *A Study of Mechanical Behavior and Morphology of Carbon Nanotube Reinforced UHMWPE/Nylon 6 Hybrid Polymer Nanocomposite Fiber,* Mujibur R. Khan, Hassan Mahfuz, Ashfaq Adnan, Th. Leventouri, and Saheem Absar, Fibers and Polymers 2014, **15**, 1484-1492 DOI 10.1007/s12221-014-1484.

Grants

Over $ 1.5 million from Federal Agencies, Companies and FAU.

TEACHING

Advisor Ph.D. Physics: Graduated 7 students.

Co-Advisor Ph.D. Physics: 6 students.

Advisor MS Physics: Graduated 12 students.

Co-Advisor Professional Science Master in Medical Physics (PSMMP): Graduated 33 students (2011-2020).

Courses

PHY 3221, PHY 4822L, PHS 5224, PHS 5204, PHY 5937, PHY 6938, PHY 6971, PHZ 6435, PHY 6920, PHY 2053, PHY 2054, PHY 3051, PHY 3050, PHY 3040, PHY 7980, PHZ 5304, RAT 6686, RAT 6975, RAT 6687, PHY 6920 RAT 6932 RAT 6686, PHY 5937, PHY 6938, PHZ 6435.

SERVICE

Editorial Service: Reviewer for 14 journals.

"Status of Women in Physics" sponsored by the APS, Speaker.

Partial list of University, College, Departmental & Community Service

- Founder and Director Medical Physics program:
  - Professional Science Masters in Medical Physics (PSMMP) 2010- CAMPEP accredited 2014. Reaccredited 2019.
  - Medical Physics Certificate for PhD holders, CAMPEP accredited 2017.
- University Faculty Senate 2017-
- Director: Center for Biomedical and Materials Physics (CBAMP) 2005-
- Institutional Review Board (IRB) 2012-
- NTT Instructors & Scientists Promotion Committees 2013-
- Frontiers in Science Steering Committee 2015-
- Master Teacher 2014
- Undergraduate Advisor, Department of Physics 2006-15
- SPS/Sigma Pi Sigma Advisor, 2006-14
- The Broward County Science Fair, Judge 2005
- Executive Board of the Hellenic Society "Paideia" 2003-08
- Hellenic Society "Paideia" Secretary Elected 2004