

Eleftherios Iliopoulos

Curriculum Vitae

PERSONAL DATA

Birth: 26 July 1970, Athens, Greece
Nationality: Hellenic
Work Address: Physics Dept., University of Crete
P.O. Box 2208
71003 Heraklion-Crete
Greece
Contacts: Tel: +30 2810 394113
Fax: +30 2810 394106
Email: iliopoul@physics.uoc.gr

PROFESSIONAL

Nov. 2017-now Associate Professor
Physics Dept., University of Crete
Jan. 2009 –Oct.2017 Assistant Professor
Physics Dept., University of Crete
Associated Faculty Member
Jan. 2009 - now Institute of Electronic Structure and Lasers (IESL)
Foundation for Research and Technology-Hellas (FORTH)
Sept.2007-Dec.2008 Visiting Assistant Professor (PD407)
Physics Dept., University of Crete
Jan. 2007-Dec.2008 Research Scientist
Institute of Electronic Structure and Lasers (IESL)
Foundation for Research and Technology-Hellas (FORTH)
Jan.2004-Dec.2006 Postdoctoral Researcher, Physics Dept., University of Crete
Jul.2002-Dec.2004 Military Service
Meteorologist, Hellenic Air Forces (HAF)

EDUCATION

2002 Ph.D. in Electrical Engineering
Boston University, Boston MA, U.S.A.
Center for Photonics Research
Thesis: "Growth Kinetics and Investigations of Spontaneous Formation of Superlattices in $\text{Al}_x\text{Ga}_{1-x}\text{N}$ Alloys"
Advisor: T.D.Moustakas
2001 Winter School in High Resolution Transmission Electron Microscopy
Arizona State University, Tempe AZ, U.S.A,
1996 M.Sc. in Physics
Ranked 1st in Class
Northeastern University, Boston MA, U.S.A.
Project: "Characterization of High Speed/High Frequency Laser Diodes"

(Research Laboratory of Electronics-MIT)
1994 B.Sc. in Physics (Ptychion)
Physics Dept, National and Kapodistrian University of Athens
Thesis: "Spontaneous Symmetry Breaking in ϕ^4 Field Theories"

HONORS - AWARDS

- ✓ Permanent Steering Committee Member of EXMATEC (Expert Evaluation and Control of Compound Semiconductors Materials and Technologies) biannual workshop
- ✓ National representative and vice-president of 1st WP of European Research coordination project COST MP0805
- ✓ Elected Board of Directors member of "Micro & Nano Hellenic Scientific Society"
- ✓ 11 invited talks in international conferences
- ✓ Appointed workpackage leader in ORAMA project
- ✓ Best poster award in MRS Fall 2000 Meeting
- ✓ Research fellowships from ONR and DARPA
- ✓ Hellenical Chemical Society Award

RESEARCH ACHIEVEMENTS

- ✓ Quantified the kinetic mechanisms of InGaN(0001) epitaxial growth and identified the optimum growth window for the epitaxy of device quality homogeneous thick InGaN films in the entire composition range
- ✓ Identified the role of polarization fields in the operation of InGaN photovoltaic devices and the optimum design for efficient single heterostructure solar cells
- ✓ Developed experimental methodology for sub-Johnson noise M4C measurements of carrier effective mass and transport parameters in high resistivity semiconductor specimens
- ✓ Developed room temperature operating AlGaN/GaN resonant tunneling diodes (RTDs)
- ✓ Developed GaN QDs embedded in dielectrics/Si for non-volatile memory devices applications
- ✓ Identified the bandgap dependence of InAlN alloys on composition and demonstrated its non-parabolic function relation
- ✓ Developed high quality AlGaN/GaN heterostructures with "state of the art" 2DEG electrical properties for HEMT and EG-FET device applications.
- ✓ Developed InGaN thin films in the entire composition range and InAlN films lattice-matched to GaN
- ✓ Demonstrated the predominant role of excited molecular species in the growth of III-Nitrides by plasma-assisted molecular beam epitaxy
- ✓ Reported for the first time the spontaneous formation of superlattices in AlGaN alloys
- ✓ Identified the growth kinetics mechanism that controls the composition of AlGaN films in plasma-assisted molecular beam epitaxy

- ✓ Identified the dependence of AlGaIn alloy ordering on crystal polarity and kinetic conditions of growth and show its effect on optical properties
- ✓ Identified the dependence of GaN photoluminescence on Si doping and developed a model to account for the width of PL spectra
- ✓ Reported the absence of Burstein-Moss effect in heavily doped n-GaN films

TEACHING EXPERIENCE

- 2011: Organizer, "21st Advanced Physics Summer School in Nanoelectronics", Heraklion-Crete, July 2011
- 2008-now "Advanced Physics Labs", Physics Dept., Univ. Crete
- 2008-2014 "Physics Labs II (Electromagnetism)", Physics Dept., Univ. Crete
- 2007-now "Topics in Contemporary Physics", Physics Dept., Univ. Crete
- 2006-now "Circuit Analysis", Physics Dept., Univ. Crete
- 2004 "Semiconductor Physics", in Advanced Physics Summer School-2004, Physics Dept., Univ. Crete
- 1998-2001 Part of graduate course "Solid State Devices", Elec. Eng. Dept, Boston University
- 1995-1996 Teaching Assistant in "Modern Physics" and "Astronomy and Astrophysics" classes, Physics Dept., Northeastern Univ.
- 1994-1996 Teaching Assistant in "Physics Labs", Physics Dept., Northeastern Univ.

- ✓ Advisor of 2 Ph.D. students Theses
- ✓ Advisor of 5 M.Sc. students Theses
- ✓ Participated in the 3 member advisory committee of 4 Ph.D. students
- ✓ Participated in the 7 member examination committee of 10 Ph.D. students
- ✓ Participated in the 3 member examination committee of 8 M.Sc. students

RESEARCH INSTRUMENTATION DEVELOPMENT/ACQUISITION

- ✓ Responsible from procurement, installation and operation of closed cycle He superconductive magnet/cryostat in Physics Dept., UoC
- ✓ Responsible from procurement, installation and operation of Chemical Vapor Deposition (CVD) reactors for graphene and TMDs in Physics Dept., UoC
- ✓ Responsible from procurement and installation of Atomic Layer Deposition (ALD) reactor in Physics Dept., UoC
- ✓ Developed high accuracy, low noise double modulation instrumentation for thermo-magneto-transport (resistivity-Hall-Seebeck-Nernst) measurements
- ✓ Responsible for installation and operation of extended range (UV-Vis-NIR) variable angle spectroscopic ellipsometer in Physics Dept., UoC

PROFESSIONAL ACTIVITIES

- ✓ Ex-Member of Board of Directors of "Micro & Nano Hellenic Scientific Society"
- ✓ Reviewer for international journals:
 - Applied Physics Letters
 - Physical Review B

Journal of Applied Physics
Physica Status Solidi
Optics Express
Journal of Crystal Growth
Microelectronics Engineering
Applied Surface Science
Thin Solid Films

CONFERENCE COMMITTEES' PARTICIPATION

- ✓ “13th Expert Evaluation and Control of Compound Semiconductor Material and Technologies (EXMATEC 2016)”, June 2016, Aveiro, Portugal: Steering Committee
- ✓ “12th Expert Evaluation and Control of Compound Semiconductor Material and Technologies (EXMATEC 2014)”, June 2014, Delphi, Greece: Chairman of Organizing Committee
- ✓ “38th Workshop on Compound Semiconductor Devices and Integrated Circuits (WOCSDICE 2014)”, June 2014, Delphi, Greece: Vice-chairman of Organizing Committee
- ✓ “5th International Conference on Micro- Nano-electronics, Nanotechnology and MEMS (Micro&Nano 2012)”, October 2012, Heraklion: Organizing and Program Committees' member
- ✓ “4th International Symposium on Transparent Conductive Materials (TCM 2012)”, October 2012, Xersonissos, Greece: Local Organizing Committee member
- ✓ COST MP-0805 Spring Training School on “Epitaxy and Structural Characterization of III-V-N Semiconductors”, April-May 2012, Heraklion, Greece: Organizing Committee
- ✓ COST MP-0805 Workshop on “Site-controlled Epitaxy”, May 2012, Heraklion, Greece: Organizing Committee
- ✓ “13th International Conference on Transparent Optical Networks (ICTON 2011)”, 26-30 June 2011, Stockholm, Sweden: Scientific Program Committee member
- ✓ “4th International Conference on Micro- Nano-electronics, Nanotechnology and MEMS (Micro&Nano 2010)”, 12-15 Dec. 2010, Athens, Greece: Organizing and Program Committees' member
- ✓ “19th European Workshop on Heterostructure Technology (HETECH 2010)”, 18-20 Oct. 2010, Fodele, Greece: Organizing Committee member
- ✓ “3rd International Symposium on Transparent Conductive Materials (TCM 2010)”, 17-21 Oct.2010, Analipsi, Greece: Local Program Committee member

PRINCIPAL INVESTIGATOR IN RESEARCH GRANTS

- ✓ “High Efficiency III-Nitride Semiconductors Photovoltaic Devices (NitPhoto)”, funded by Greek National Program “Thales”, Jan. 2012-Oct.2015, amount 600 ke
- ✓ “Hybrid electroluminescence devices based on combination of light-emitting polymers and III-Nitride semiconductors”, awarded by Research Promotion Foundation of Cyprus, duration Jan.2011-Dec.2014, amount 54 ke

- ✓ “UV-VIS tunable wavelength photodetectors based on quantum dots-resonant tunneling diodes III-Nitrides structures”, awarded by European Space Agency (E.S.A.), duration Oct.2007-Jun.2009, amount 100 k€ + 250 k€
- ✓ “Lattice properties and microstructure of new III-Nitride semiconductor heterostructures”, Greek-Polish Bilateral Projects, awarded by General Secretariat of Research and Technology-Greek Ministry of Development, started 2006, duration: 18 months, amount: 11 k€

PARTICIPANT INVESTIGATOR IN RESEARCH GRANTS

- ✓ “Crete Center for Quantum Complexity and Nanotechnology” (CCQCN), FP7-REGPOT-No316165, EU funding (9/2013-11/2016), budget 4M€, Management Committee Member and Proposal co-author
- ✓ “Oxide Materials towards a Mature post-Silicon Electronics Era” (ORAMA), FP-7-NMP-246334, EU funding (10/2010-9/2014)
- ✓ “Materials for Robust Gallium Nitride” (MORGaN), Nanosciences, Nanotechnologies, Materials and New Production Technologies (NMP) Large scale integrating project, Grant agreement no: 214610, EU funding (11/2008 – 10/2011)
- ✓ “InAlN/(In)GaN Heterostructure Technology for Ultra-high Power Microwave Transistor” (ULTRAGAN), IST STREP Contract no. FP6-006903, EU funding (1/9/2005-31/10/2008)
- ✓ “Interfacial phenomena at atomic resolution and multiscale properties of novel III-V semiconductors” (PARSEM), MRTN-CT-2004-005583, EU funding (1/3/2005-28/2/2009)
- ✓ “Epitaxy and properties of novel III-N heterostructures and nanostructures”, Pythagoras, funding from Greek Ministry of Education (1/3/2004-31/8/2006)
- ✓ “New Generation of GaN-based sensor arrays for nano- and pico-fluidic systems for fast and reliable biomedical testing” (GaNano), NMP-2002-505641-1, EU funding (2004-2006)

INDUSTRIAL COOPERATION

- ✓ Participated in projects with EADS for the development of EG-HEMTs for nanofluidic and picofluidic applications
- ✓ Participated in projects with Aixtron and III-V Labs for the development of high power RF InAlN/GaN HEMT transistors
- ✓ Participated in projects with Lockheed-Martin Inc., EG&G Inc. (now part of Perkin-Elmer Inc.) and BAE Inc. for the development of ultraviolet and solar-blind detectors
- ✓ Participated in projects with AsTex Inc. for the development of ECR plasma source
- ✓ Participated in projects with Epion Inc. for the development of III-Nitrides growth using gas cluster ion beam source

PUBLICATIONS STATISTICS

Number of publications in international refereed journals 68

Number of publications in international 20
refereed conference proceedings
Number of Citations / Self-citations 1389 / 99
h-index 23
Data from ISI-Web of Science, Scopus and Publishers
Updated: 10 February 2017
