

## CURICULLUM VITAE

### PERSONAL INFORMATION

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### EDUCATION

Oct. 1997-Mar. 2003      B.Sc. in Physics, Department of Physics, University of Crete

Sept. 2003- Sept. 2006      M. Sc., Graduate Program of Microelectronics and Optoelectronics, Dept. of Physics, University of Crete

Title of Research Thesis:      Fabrication and characterisation of monolithic integrated microwave Schottky diode receiver in the U-band

- Through this M.Sc. there was established a highly repeatable and with high yield (~90%) process for the fabrication of integrated Schottky diodes on GaAs membranes  
- This work led to the development of the millimeter wave identification (MMID) concept in collaboration with IMT Bucharest (Romania) and VTT (Finland).

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### RESEARCH EXPERIENCE

- Technical Research staff as a cleanroom process engineer at I.E.S.L. (Institute of Electronic Structure and Laser) (M.R.G., Microelectronics Research Group), F.O.R.T.H. (Foundation of Research and Technology Hellas) since September 2006 until today.
- Electron beam lithography user of the nano-patterning infrastructure of FORTH
- Participation in the following research projects:
  - Advanced MEMS For RF and Millimetre Wave Communications (AMICOM) FP6 - NoE
  - Photonic Metamaterials (PHOME) - FP7-ICT cooperation
  - Nanoelectronics for Safe, Fuel Efficient and Environment Friendly Automotive Solutions (SE2A) -JU ENIAC call 1

- Micro and Nano Technologies Based on Wide Band Gap Materials for Future Transmitting Receiving and Sensing Systems (“MERCURE”)-JU ENIAC call 2
  - Large Area silicon carbide Substrates and heteroepitaxial GaN for POWER device applications (LASTPOWER), ENIAC Call 2
  - SiC device in power designs for space applications, ESA-Greece Call 1
  - Exciton-polaritons: physics and devices, “CLERMONT 4”, FP7-PEOPLE-ITN-2008
  - Hybrid organic-inorganic nano-structures for photonics, optoelectronics and energy-generation, “ICARUS”, FP7-PEOPLE-ITN-2008
  - Development of a UV detection system based on SiC APDs, ESA-Greece Call 1
  - FP7 – NANORF - Carbon Based Smart Systems For wireless applications
  - FP7 – NANOTEC – Nanostructured materials and RF-MEMS RFIC/MMIC technologies for highly adaptive and reliable RF systems
  - FP7 - SMARTPOWER - Smart integration of GaN & SiC high power electronics for industrial and RF applications
  - ENIAC - NANOCOM – Micro and Nano Technologies Based on Wide Band Gap Materials for Future Transmitting Receiving and Sensing Systems
  - ENIAC – MERCURE - Micro- and nanotechnologies based on wide band gap materials for future communication and sensing systems
  - HORIZON 2020 – CHIRON - Spin Wave Computing for Ultimately-Scaled Hybrid Low-Power Electronics
  - EINSTEIN bilateral Greece-Russia collaboration project - Experimental and theoretical studies of physical properties of low dimensional quantum nanoelectronic systems
  - EPAnEK 2014-2020 Competence – Entrepreneurship – Innovation - RADAR - Heterogeneous 3D integration employ disruptive nanotechnologies for the next generation of smart power RF T/R modules, Research – Create – Innovate, Co-financed by Greece and the European Union
- Short-listed and ranked 1<sup>st</sup> as a candidate for a job recruitment offer for a position as an “Electron-Beam Lithography (EBL) and Process Engineer” by Stewart Blusson Quantum Matter Institute (SBQMI) of University of British Columbia, Vancouver, Canada, April 2018

### AWARD

- Academia Romana (Romanian Academy) –

*Premiul Gheorghe Cartianu (Gheorghe Cartianu Award) for the publication :*

“Rezonatoare de microunde cu unde acustice de suprafata, functionand ca senzori de temperature ultrasensibili”

“Surface Acoustic Wave-based (SAW) microwave resonator used as ultrasensitive temperature sensor”

16 December 2016

## SKILLS

### Fabrication Process Design and Development

- Fabrication process design and development taking into consideration fabrication design rules and executing required preliminary fabrication process (if necessary)
- GDSS II physical layout design (Phoenix Clewin and AutoCAD)
- Electron Beam Lithography layout design suite (Raith Elphy CSF format)

### Lithography

- UV, DUV contact mask aligners (Karl Suss MA6 & MJB3)
- E-beam lithography (Raith Elphy Quantum Electron beam writer attachment)
- i and h-line novolac based Photoresist (extensive range of Clariant AZ-series photoresists)
- EBL resists: Poly-methyl methacrylate (PMMA), Hydrogen SilsesQuioxane (HSQ), Microresist ma-N2403
- Spin-on dielectrics: Polyimides (HD Microsystems PI-series), SU-8, BisbenzoCycloButene (Dow Cyclotene BCB), PolyMethylGlutarImide (Microchem PMGI)
- Anti-reflective coatings (AZ Barli-II)

### Surface Electron Microscopy (SEM)

- Field Emission Scanning Electron Microscope JEOL JSM-7000F

### Material Deposition/Growth Systems

- Wide range of metal depositions for using Ultra High Vacuum (UHV) e-beam evaporator (Temescal BJD -1800)
- Au and Ni electroplating deposition
- Mini Au/Pd sputtering system (Quorum SC 7620)
- Atomic Layer Deposition system (Picosun R-200 Advanced) ( $\text{Al}_2\text{O}_3$ ,  $\text{HfO}_2$ )
- SiN deposition using Plasma Enhanced CVD system (Vacutec 1500) (SiN)
- Thermally grown oxidation of Silicon and SiC into  $\text{SiO}_2$  (ELITE Thermal Systems Limited TMH12/75/750)

### III-V Semiconductors

- Electrical Contacts with Rapid Thermal Annealing Furnace (RTA) (Jipelec FAV4 System)
- Wet etching (semiconductor, metal, organic and inorganic material etch back – organic and acid based wet bench experience)
- Dry etching techniques using Reactive Ion Etching (RIE) system utilizing chlorine and fluorine based plasma chemistry (Vacutec 1500) with in situ laser interferometry and optical emission spectroscopy end-point detection techniques (Jobin Yvon Sofie)
- Fabrication of FETs, HEMTS, PHEMTS devices
- Fabrication of III-V MMICs devices
- Fabrication of SiC Avalanche PhotoDiodes (APDs) and TI-VJFETs devices
- Radiation detectors

### Wide Band Gap Semiconductors:

- Electrical Contacts for SiC and III-Nitrides,

- Reactive Ion Etching of SiC and III-Nitrides
- Fabrication of III-N MMICs
- Fabrication of SiC devices (TI-VJFET, Photodetector diodes)
- Fabrication of GaN devices (HEMTs, Sensors, Resonators, Filters, Detectors)

#### MicroElectroMechanical Systems (MEMS)

- High frequency circuits on thin membranes (RF MEMS)
- RF Switches
- Micromachining of compound semiconductor SAW and FBAR for chemical, thermal, humidity sensors
- Thin film membrane supported monolithically integrated III-As based Antennas and Receivers in the U-band frequency range

#### Metrology:

- Contact topography profilometry (Veeco Dektak 150)
- DC probe station (Sony Tektronix 370 curve tracer)

#### Project Management

- Project Report and Deliverable documentation
- Micro and Nano-fabrication process development

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#### **SEMINARS / CERTIFICATES**

- Participation in University, Government, Industry and Micro/Nanoelectronics (UGIM) 22<sup>nd</sup> International Conferenc, “Micro/Nanotechnology Facilities Management and Operations”, University of Pennsylvania, 24-27 June 2018
- Participation in 7<sup>th</sup> International Summer School, New Frontier in Optical Technologies, Tampere Summer School 2013
- Participation in Raith Nanolithography Seminar, “General knowledge on electron and ion beam lithography as fundamentals techniques for nanofabrication in R&D, and their scientific applications”, March 2009