CONTACT DETAILS

Phone Number: +302106503267

Email address: a.zeniou@inn.demokritos.gr

Nationality: Cypriot
Civil Status: Married, 1 child

LinkedIn Address:
https://www.linkedin.com/in/angelos-zeniou-9662b030

PROFILE

Dr. Angelos Zeniou is a post-Doc Fellow of the Plasma Group in the Institute of Nanoscience and Nanotechnology of NCSR Demokritos. He is an expert in the development of new Plasma Processes and the design of new prototype plasma equipment in vacuum and atmospheric pressure. He got his degree of Electronic Engineer from the Technological Institute of PIRAEUS and his master's degree from the University of Athens with direction of Microelectronics. His MSc thesis is titled «Nanoscale silicon plasma etching processes for fabrication of ultra-high aspect ratio silicon nanopillars/vertical nanowires». His PhD Thesis is focused on the design and construction of new plasma reactors in vacuum and atmospheric pressure for surface modification of polymeric materials. He works in NCSR Demokritos since 2009 in several projects and his work is mainly focused on the design and constructions of new prototype plasma equipment, the development of new plasma processes for the Plasma Group and external collaborators. Finally, he is in charge for the plasma lab as well as the service and modification of the plasma DRIE systems in the lab.

EDUCATION

02/2015 – 02/2021
PhD in Patras University – Physics Department & NCSR Demokritos – INN Department.
Thesis entitled: Design and construction of new plasma sources for use in low and atmospheric pressure for chemical and mechanical surface modification of polymeric substrates.

10/2008 – 09/2012
M.Sc. in Microelectronics: direction manufacturing technology.
Thesis entitled: Nanoscale silicon plasma etching processes for fabrication of ultra-high aspect ratio silicon nanopillars/vertical nanowires.

02/2002 – 01/2008
Graduated from the Department of Electronics of Piraeus University of Applied Sciences (Electronic Engineer).

EXPERIENCE

01/2016 – 02/2022 – NCSR DEMOKRITOS
Plasma System Design Engineer for the construction of an Inductively Coupled Plasma System for nanopatterning of polymeric and Silicon substrates. Process development for surface modification of polymeric and other microelectronic materials with plasma (etching – deposition). Research funded by the following Programs (Nano4CSP, HARMONIC, LOVEFOOD2MARKET, NOVISH)

08/2015 – 12/2015 – NCSR DEMOKRITOS
Plasma Engineer design and construction of atmospheric pressure DBD plasma system for treatment of archaeological surfaces. Funded by Latsis Foundation.
Research entitled: Nano structured Super hydrophobic, super eleophobic, self-cleaning, anti-microbial, anti-reflective surfaces for use in the protection of sensitive archaeological surfaces.

08/2012 – 08/2015 – NCSR DEMOKRITOS
Design and development of plasma source; electrical probe plasma characterization for NATO Science for Peace & Security research Program titled "Atmospheric pressure plasma jet for neutralization of CBW (chemical biological weapons)".

10/2012 – 08/2015 – NCSR DEMOKRITOS
Electrical / Plasma Engineer for technical and processing support for ICP plasma systems and other relevant equipment for Nano structuring. Process design and optimization of existing processes for Silicon and polymeric etching. Activation and modification of surfaces.
Design and construction of new shielded RF ICP source. Design and construction of wide area atmospheric RF plasma source for material treatments. Construction and design of all electronic controllers for the research program Excellence titled "Plasma Nanofactory".

02/2009 – 09/2012 – NCSR DEMOKRITOS
Electrical Engineering services for technical support for ICP Alcatel reactor plasma system and other relevant equipment for Nano structuring. Process design and optimization of existing processes for Silicon and polymeric etching. Activation and modification of surfaces for the research program SPAM - Surface Physics for advanced Manufacturing.

10/2008 – 02/2009 – UNIVERSITY OF ATHENS
Logic Design as a lab Assistant, Department of Informatics, University of Athens (UOA).

12/2006 – 09/2008 – MICRELEC ELECTRONICS SA
Programming and maintenance of robotic machines (Pick & Place) at SMD section of Micrelec Electronics S.A.

06/2006 – 12/2006
Internships in Micrelec Electronics SA

ACTIONS

COST-STSM-MP1101-17619 "Characterization of wide area atmospheric pressure plasma source by mass and optical emission spectroscopy for wetting control and bio-applications"

A short-term scientific mission to the Institute of Physics in Belgrade (IPB) was performed during 04/05/2014 – 23/05/2014. The goal of this visit was the characterization of an atmospheric DBD apparatus by mass spectrometry, optical emission spectroscopy, ICCD imaging and I-V characterization for finding the best conditions for polymer surface treatments. Plasma was ignited with addition of He as buffer gas (to lower down the breakdown voltage) firstly in air and then with oxygen was added to the helium flow (mixtures 1%O2 and 0.5% O2 in He)

ACHIEVEMENTS

First Place in the Competition Green Tech Challenge of NTUA.

LANGUAGES

ENGLISH: F.C.E. (Cambridge)
EDEXCEL LEVEL 4

SPECIAL SKILLS

- Use, operation, repair of ICP plasma reactor with vacuum systems, RF generators, PLC automation knowledge, RF component characterization. Design of passive and active RF circuits.
- Use and operation of measurement equipment like Multimeter, Oscilloscope, power meter etc.
- Use and operation of spectroscopic ellipsometry (JA WOOLAM CO., INC / FLS300), atomic scanning microscope (Veeco).

PATENTS

- *Large Area Uniform Atmospheric Pressure Plasma Processing Device, E. Gogolides, **A. Zeniou**, P. Dimitrakellis, Greek Patent Application No 20150100397 - 09.09.2015, Patent also filed to E.P.O. Application Number: 16386016.6 - 08.09.2016*
- *Variable Faraday shield for a substrate holder, a clamping ring, or an electrode, or their combination in a plasma reactor, E. Gogolides, **A. Zeniou**, Greek Patent Application No 20160100220 - 27.04.2016, Patent also filed to E.P.O. Application Number: 17386017.2 - 26.04.2017*

SELECTED PAPERS, CONFERENCES

- *Angelos Zeniou, Athanasios Smyrnakis, Vassilios Constantoudis, Kamil Awsiuk, Evangelos Gogolides, One-step Control of Hierarchy and Functionality of Polymeric Surfaces in a new Plasma Nanotechnology Reactor, 2021Nanotechnology 32(23)*

- *Comparison of Helical and Helicon Antennas as Sources of Plasma Excitation Using a Full Wave 3D Electromagnetic Analysis in Vacuum, Stratakos, Y. Zeniou, A. Gogolides, E., 2017, Plasma Processes and Polymers.*
- *Electrical and optical characterization of an atmospheric pressure, uniform, large-area processing, dielectric barrier discharge, Zeniou, A. Puač, N. Škoro, N. Selaković, N. Dimitrakellis, P. Gogolides, E. Petrović, Z.L., 2017, Journal of Physics D: Applied Physics*
- *Electromagnetic simulation of helicon plasma antennas for their electrostatic shield design, Stratakos, Y. Zeniou, A. Gogolides, E., 2016, Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films.*
- *Radio frequency atmospheric plasma source on a printed circuit board for large area, uniform processing of polymeric materials, Dimitrakellis, P. Zeniou, A. Stratakos, Y. Gogolides, E, 2016, Plasma Sources Science and Technology.*
- *M.C. Kyrasta, Th. Smyrnakis, A. Zeniou, A. Gogolides, E. Tsamis, C., 2015, Materials Letters.*
- *Ultra-high aspect ratio Si nanowires fabricated with plasma etching: Plasma processing, mechanical stability analysis against adhesion and capillary forces and oleophobicit, Zeniou, A. Ellinas, K. Olziersky, A. Gogolides, E., 2014, Nanotechnology.*
- *A non-lithographic, plasma nanoassembly technology for polymeric nanodot and silicon nanopillar/wire fabrication (oral), A. Smyrnakis, A. Zeniou, E. Gogolides, 10th Plasma Etch and Strip for Microtechnology workshop PESM 2017, 19-20 October 2017, Leuven, Belgium*
- *Plasma nanoassembly and plasma nanotexturing of polymers: controlling the transition from order to randomness towards versatile applications (oral), A. Smyrnakis, A. Zeniou, E. Gogolides, iPlasmaNano-VIII, 2-6 July 2017, University of Antwerp, Belgium*
- *Plasma Etched Silicon Nanowires: Optical Properties and Mechanical Stability (poster), A. Smyrnakis, A. Zeniou, E. Gogolides, iPlasmaNano-VII 2016 Conference, 16-20 October 2016, Vravrona, Greece*
- *Characterization of a novel dielectric barrier discharge operating at atmospheric pressure and application in polymer processing (oral), P. Dimitrakellis, N. Puac, A. Zeniou, N. Selakovic, N. Skoro, Y. Stratakos, E. Gogolides, Z. Petrovic, Bioplasmas and Plasmas with Liquids, 13-16 September 2015, Bertinoro, Italy*
- *Atmospheric pressure dielectric barrier (DB) plasma source for high efficiency and large area oxidation of organic matter (poster), P. Dimitrakellis, A. Zeniou, E. Gogolides, 2015 International Nonthermal Processing*