



# MicroNano 2024 International Conference



11-13 October 2024, FNS, University of the Aegean, LEMNOS

## 11th International Conference on Micro-Nanoelectronics, Nanotechnology and MEMS

Venue: Garofalidio Lecture Hall & Municipal Cinema Maroula

### Sponsors

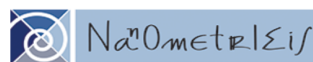


We acknowledge the Municipality of Lemnos for the kind concession of the "Maroula" Cinema and the "Galiouri" hall.

We thank the director of SAEK Lemnos, Iulia Lygda, for the cooperation.



### Exhibitors





**Friday October 11th, 2024**

**11th International Conference on Micro-Nanoelectronics, Nanotechnology and MEMS**

**Venue: Garofalidio Lecture Hall & Municipal Cinema Maroula**

16:00 - 16:30	<b>Registration</b> <b>Venue: Municipal Cinema Maroula</b>		
16:30 - 17:00	<b>Welcome Coffee Break-Exhibition</b> <b>Venue: Municipal Cinema Maroula</b>		
<b>Parallel Session 1</b>	<b>Micro and Nano Fabrication I</b> <b>Venue: Garofalidio Lecture Hall,</b> <b>Session chair N. Kehagias</b>	<b>Parallel Session 2</b>	<b>Electronic, optoelectronic, photonic devices and circuits I</b> <b>Venue: Municipal Cinema Maroula</b> <b>Session chair E.Hourdakis</b>
17:00 - 17:15	Cross-Linking of PVA-Based Coatings for Antifouling Applications <u>Alexandra Gkolosi</u> , Dimitris Pantelakis, Panagiota Petrou, Panagiotis Argitis, Margarita Chatzichristidi	17:00 - 17:30	<b>Invited Talk</b> Design Challenges of Next Generation Communication Systems: Transistor to Architecture Overview G. Panagopoulos
17:15 - 17:30	Quantitative analysis of the anisotropy and directionality of surface roughness and microscopy images E. Stai and <u>V. Constantoudis</u>		
17:30 - 17:45	Membrane treatment with plasma technology for water separation. desalination and acid retrieval Angelos Zeniou, Eleftherios Manouras, Dimosthenis Ioannou, Andreas Sapalidis, <u>Evangelos Gogolides</u>	17:30 - 17:45	A low power tactile sensory neuron using strain sensor and memristor <u>D.Tsoukalas</u> , P.Bousoulas, S.D. Mantas, C.Tsiouostas
17:45 - 18:00	Is there such a thing as an ideal surface functionalization chemistry or are we chasing chimeras? Aryl diazonium salts beg you to reconsider Aikaterini Spanou, Zena Chakim, <u>George Tsekenis</u>	17:45 - 18:00	A magnonic majority gate excitation and readout CMOS integrated circuit: Towards hybrid CMOS-spin wave computational systems <u>Ilias Tsakiridis</u> , Ioannis Kousparis, Nikos Alexiou, Dimitrios Kalampakas, Aristeidis Agathokleous, Georgios Ntounas, Panagiotis Kassanos and Nikos Naskas
18:00 - 19:00	<b>Poster session I (odd numbers)</b> <b>Venue: Garofalidio Lecture Hall</b>		
19:00 - 19:45	<b>Plenary presentation 1</b> <b>Next Generation Electronic Devices from Low to THz Frequencies</b> <b>PROF. Dimitris Pavlidis</b> <b>Session chair G.Konstantinidis</b> <b>Venue: Garofalidio Lecture Hall</b>		
19:45 - 20:00	<b>Invited talk for Nanotechnology processes with atomic-scale precision: Access to new tools and clean-room infrastructure for researchers and the Industry</b> C.Zormpa, S.Mouchtouris, V.Vamvakas, E.Gogolides <b>Venue: Garofalidio Lecture Hall</b>		

20:00 - 20:20	<p><b>Invited Zoom talk from HETIA (Hellenic Emerging Technologies Industry Association)</b>  <b>Manolis ZERVAKIS HETiA president</b>  Venue: Garofalidio Lecture Hall</p>
20:20 - 20:35	<p><b>Invited Zoom talk from Hphos (Hellenic Photonics Cluster)</b>  <b>Dr. Alexandros Selimis</b>  Venue: Garofalidio Lecture Hall</p>
20:40 - 22:30	<p><b>Main Welcome Reception</b>  Venue: Municipal Cinema Maroula</p>
	<p><b>Addresses from Organization committee, Host University, Local authorities</b></p>
	<p><b>Finger food, Drinks and Networking</b></p>



**Saturday October 12th, 2024**

**11th International Conference on Micro-Nanoelectronics, Nanotechnology and MEMS**

**Venue: Garofalidio Lecture Hall & Municipal Cinema Maroula**

09:00 - 09:30	<b>Registration</b> <b>Venue: Municipal Cinema Maroula</b>		
09:30 - 09:40	<b>Award ceremony PROF. EM. D Poulikakos</b> (Organizing committee 2024 & Micro-Nano Society President E.Gogolides) Venue: Municipal Cinema Maroula		
09:40 - 10:25	<b>Plenary Presentation 2</b> <b>The architecting of nanomaterials for water condensation applications</b> <b>PROF. EM. D Poulikakos</b> Session chair K. Ellinas Venue: Municipal Cinema Maroula		
10:25 - 10:55	<b>Invited Talk</b> <b>HFRI's impact in the Hellenic Academic and Research Eco-system</b> <b>Dr. Katerina Kouravelou (HFRI Director)</b> Venue: Municipal Cinema Maroula		
10:55 - 11:25	<b>Coffee Break-Exhibition</b> Venue: Municipal Cinema Maroula		
<b>Parallel Session 3</b>	<b>Micro and Nano Fabrication II</b> Venue: Garofalidio Lecture Hall Session chair E.Gogolides	<b>Parallel Session 4</b>	<b>Materials for Electronics Photonics &amp; Sensors</b> Venue: Municipal Cinema Maroula Session chair I.Raptis
11:30 - 11:45	30 years nanoimprint lithography: Past, present and future of nanoimprint lithography <u>N.Kehagias</u>	11:30 - 11:45	A study of Nanocrystalline Diamond electrical properties for RF-MEMS capacitive switches application <u>I.Kochylas</u> , J. Theocharis, G.Papaioannou, Z.Afshin
11:45 - 12:00	Next-Generation Electrocatalysts: Carbon-Engineered Nanomaterials for Sustainable Energy Solutions <u>A.Rapakousiou</u>	11:45 - 12:00	A Computational Lithography Approach for Enhancing Overlay Modeling in Lithographic Processes <u>A.Magklaras</u> , P.Alefragis, C.Gogos, A. Birbas
12:00 - 12:15	Ultra-thin, polymeric thermal diodes that incorporate stable superhydrophilic and superhydrophobic surfaces for phase change heat transfer applications <u>V.Tselepi</u> , I.Filippou, D.Nioras, K.Ellinas	12:00 - 12:15	Electrical Characterization of HfO <sub>2</sub> Dielectric Films Deposited by ALD for RF-MEMS Capacitive Switches <u>J. Theocharis</u> , J. P. Martins, A. Mahjoub, E. Eustache, A. Ziaei and G. Papaioannou
12:15-12:30	Fabrication of Surface Dielectric Barrier Discharge Non-thermal Plasma Actuators Printed with Aerosol Jet Technology <u>M. Karani</u> , K. Kourtzanidis, P. Dimitrakellis, N. Hastas, N. Vlachos, G. Karagiannakis	12:15-12:30	Behavioural model for GaN heterojunction diodes implemented with standard diode models <u>L.Chevas</u> , N.Makris, M.Kayambaki, A. Kostopoulos, A. Stavriniadis, G.Konstantinidis, M. Bucher
12:30-12:45	Mechanical strain effect on AlGaIn/GaN based HEMTs <u>E.Aslanidis</u> , M.Makris, G.Stavriniadis, G. Christodoulakis, A.Stavriniadis, G.Kostantinidis,	12:30-12:45	Investigation of AlN{0001}/Si(111) heterostructures <u>M.Kayambaki</u> , C.C.Katsidis, A.Adikimenakis, A.Kostopoulos, K.Tsagaraki, M.Androulidaki and A.Georgakilas

12:50-13:40	<b>Micro Nano Society General Assembly</b> Venue: Municipal Cinema Maroula		
13:40-14:40	<b>Lunch Break-Exhibition</b> Venue: Municipal Cinema Maroula		
<b>Parallel Session 5</b>	<b>Electronic, optoelectronic, photonic devices and circuits II</b> Venue: Garofalidio Lecture Hall Session chair D. Tassis	<b>Parallel Session 6</b>	<b>Sensors and actuators</b> Venue: Municipal Cinema Maroula Session chair M. Chatzichristidi
<b>14:45 - 15:15</b>	<b>Invited Talk</b> Advancements in perovskite solar cells (PSCs) and optoelectronic memristors Emmanuel Kymakis	<b>14:45 - 15:00</b>	Electrochemical sensors 3D printed from nano-doped filaments Leonidas Papagiannakopoulos, Eleni Koukouviy, Vasiliki Polyzopoulou, Eleni Sorkoy, Maria Kartsaki, Maria Marakomichelaki, Anastasios Economou, <u>Christos Kokkinos</u>
		<b>15:00-15:15</b>	Gradual thin film Interferometry GRADE: 3D structured Si chip for label free determinations at the Point-of-Need G.Zisis, G.Papageorgiou, P.Petrou, <u>I.Raptis</u> , N.Papanikolaou
<b>15:15 - 15:30</b>	A general purpose, low-power, edge AI analog integrated Threshold classifier <u>V.Alimisis</u> , S.Dimas, P.P.Sotiriadis	<b>15:15 - 15:30</b>	Comparison of aptamer immobilization approaches through spectroscopic and SPR measurements <u>P.Petrou</u> , S. Kakabakos, IN.Ivanov
<b>15:30 - 15:45</b>	Fully Inkjet-Printed PEDOT:PSS/ZnO Heterojunctions on a Flexible Polyamide Substrate <u>G.Kaltsas</u> , A.Apostolakis, D.Bampakos	<b>15:30 - 15:45</b>	An experimental study of power related reliability in RF MEMS capacitive switches <u>L.Michalas</u> , A. Ngabonziza, G.Stavriniadis, P.Martins, M. Le Baillif, A. Ziaei, G.Konstantinidis
<b>15:45 - 16:00</b>	Construction of Organic Electrochemical Transistors based on PEDOT:PSS treated yarns and solid gel electrolyte in weft-knitted fabrics <u>E.Louris</u> , V. Koncar, T.Xuyuan, S.Vasiliadis, D.Tassis	<b>15:45 - 16:00</b>	Anisotropic Magnetoresistance Integrated Sensors for Steel Health Monitoring, Georgia Stamou, Spyros Angelopoulos, Aphrodite Ktena and <u>Evangelos Hristoforou</u>
<b>16:00 - 16:15</b>	LEDs as potential candidates for Physical Unclonable Functions (PUF) realization <u>Savvas Ermeidis</u> , Stavros Stavriniadis, Rodrigo Picos, Charalambos Dimitriadis and Dimitrios Tassis	<b>16:00 - 16:15</b>	Pressure Sensors for monitoring State of Charge of Li-ion Pouch Cells <u>F.Farmakis</u> , A.Kostantaras, N.Kakalis, M.Georgas, G.Zardalidis
<b>16:20 - 17:05</b>	<b>Plenary Presentation 3</b> <b>Laser Processing and Tip-Based Probing of Nanomaterials</b> Costas P. Grigoropoulos Session chair D.Tsoukalas Venue: Municipal Cinema Maroula		
<b>17:15-18:15</b>	<b>Poster session II (even numbers)- Coffee break</b> Venue: Garofalidio Lecture Hall		
<b>20:40</b>	<b>Conference Dinner</b> Venue: Grand Patelli Hotel		



**Sunday October 13th, 2024**

**11th International Conference on Micro-Nanoelectronics, Nanotechnology and MEMS**  
Venue: Garofalidio Lecture Hall & Municipal Cinema Maroula

<b>09:00-09:45</b>	<b>Online Plenary Presentation 4</b> <b>Hearables: Next generation solutions for eHealth and 24/7 Doctorless Hospitals?</b> <b>Dr Danilo Mandic</b> <b>Venue: Garofalidio Lecture Hall</b> <b>Session chair E. Hourdakis</b>		
<b>Parallel Session 7</b>	<b>Communicating Science-Connecting Citizen, Science and Industry</b> <b>Venue: Garofalidio Lecture Hall</b> <b>Session chair K.Ellinas</b>	<b>Parallel Session 8</b>	<b>Micro and Nano Fabrication III</b> <b>Venue: Municipal Cinema Maroula</b> <b>Session chair V. Constantoudis</b>
<b>09:50 -10:05</b>	Tackling water scarcity by using advanced technologies in business-academia-society cooperation. K.Zourou,S.Oikonomou, WEB2LEARN	<b>09:50 -10:05</b>	Fabrication and characterization of Thin Film Transistors with ZrO <sub>2</sub> gate dielectric deposited via sol-gel method on flexible substrates G.Mitrousis, A.Zventzidis, F.Farmakis
<b>10:05 - 10:20</b>	Effective Science Communication: Bridging the Gap Between Research and Society Dr Aimilia Smyrli, Head of Education at the National Centre for Scientific Research (NCSR) "Demokritos"	<b>10:05 - 10:20</b>	Water harvesting using random and ordered hierarchical interfaces D.Nioras, I.Filippou, V.Tselepi, K.Ellinas
<b>10:20-10:30</b>	<b>Gathering for excursion</b> <b>Venue: Municipal Cinema Maroula</b>		
<b>10:30</b>	<b>Excursion*</b>		
<b>15:30-16:30</b>	<b>Conference Closing Remarks-Lunch-Announcements</b> <b>Venue: Municipal Cinema Maroula</b>		

\*Free of charge, It requires confirmation during registration. It includes sightseeing around Lemnos, Stop for Coffee

Poster presentations (odd numbers on Friday and even numbers on Saturday)			
Poster No	Presenter	Title	Poster session
1	Chatzandroulis Stavros	Investigation of PDMS Microfluidic Channel Fabrication and Integration on Biosensing Platforms <u>S.Chatzandroulis</u> , M.K.Filippidou, S.Ntouskas, A.Tserepi	I
2	Karani Maria	Li-ion battery materials:Advanced characterization tools <u>M.Karani</u> , G.Kastrinaki, E.Daskalos, N.Vlachos, G.Karagiannakis	II
3	Hourdakis Emmanouel	Lateral Schottky-based photovoltaic devices <u>E.Hourdakis</u> , A.Kaidatzis	I
4	Theocharis Ioannis	Impact of Metal Contacts on Resistive Switching Behavior in SiN Dielectric Films for MEMS Capacitors <u>I.Theocharis</u> , S.Gardelis, G.Papaioannou	II
5	Sarkiris Panagiotis	Superhydrophobic surfaces for reduced friction and pressure drop in laminar and turbulent flows <u>P.Sarkiris</u> , E.Kaloudis, K.Ellinas	I
6	Tsounidi Dimitra	Carbyne-modified silicon chips as biosensing surfaces in White Light Reflectance Spectroscopy platform <u>D.Tsounidi</u> , P.Petrou, E.Manouras, A.Tserepi, E.Gogolides	II
7	Kondi Alex	Enhancing Nanomanufacturing Precision and Efficiency through Machine Learning: Applications in Etching and Deposition Processes <u>A.Kondi</u> , E.M.Papia, V.Constantoudis	I
8	Papia Efi-Maria	Machine Learning-Driven Inverse Design of Hexagonal Moiré Structures for Customizable Pore Characteristics <u>E.M.Papia</u> , A.Kondi, V.Constantoudis	II
9	Kosmas Ellinas	Fabrication of superhydrophobic, micro-nanotextured biopolymers produced through valorization of Brewer's spent yeast D.Ioannou, I.D.Koukoumaki, M.Karpeli, D.Sarris, E.Gogolides, <u>K.Ellinas</u>	I
10	Kaltsas Grigoris	Unique Identification of Printed Structures Through Edge Roughness Detection <u>G.Kaltas</u> , D.Mpampakos, A.Apostolakis, V.Constantoudis, E.Zois	II
11	Filippos Farmakis	Improved core-shell silicon anode for Lithium-Ion Batteries with the carbonization of a polydopamine layer Ioanna Lefa, Georgios Charalampopoulos, Dimitrios P. Argyropoulos, Georgia Moisiadou, Maria Daletou, <u>Filippos Farmakis</u>	I
12	Tsagkaraki Katerina	Determination of III-Nitride compound semiconductors polarity by SPM methods <u>K.Tsagkaraki</u> , A.Adikimenakis, A.Kostopoulos, A. Georgakilas	II
13	Filippou Ioannis	Microfabricated, Asymmetric Flexible Ultra-Thin Polymer Vapor Chambers for phase change heat transfer applications <u>I.Filippou</u> , V.Tselepi, D.Nioras, K.Ellinas	I
14	Kontomitrou Vasiliki	Considering sustainability in nanofabrication cleanrooms: Initial thoughts to accelerate the concept <u>V.Kontomitrou</u> , S.Lymeropoulou, G. Stavrinidis, A. Stavrinidis, A.Kostopoulos, G.Konstantinidis, L.Michalas	II
15	Chatzichristidi Margarita	Fluoropolymer surfaces modification using ultraviolet irradiation <u>M.Chatzichristidi</u> , M.E.Mylona, T.Manouras, A.Kanioura, P.Petrou, M.Vamvakaki	I
16	Kleitsiotis Georgios	Ultra-Low Power CBRAM with Multilevel Cell Precision for Digital Twins of Engineered Living Materials <u>G. Kleitsiotis</u> , D. Mantas, P. Bousoulas, C. Tsiousta, I. A. Frygos, D. Tsoukalas and G.Sirakoulis	II
17	Skaltsounis Panagiotis	Inertial microfluidic device bearing cavities for microparticle separation <u>P.Skaltsounis</u> , G.Kokoris, E.Gogolides, A.Tserepi	I
18	Alimisis Vassilis	A low-power, analog integrated Artificial Neural Network classifier for IoT applications <u>V.Alimisis</u> , C.Dimas, P.P.Sotiriadis	II
19	Louris Evangelos	Memristive phenomena in fiber-based Organic Electrochemical Transistors for potential textile circuits <u>E.Louris</u> , S.Stavrinides, D.Tassis	I
20	Fouka Athanasia	Hydrothermal Growth of CuO nanotextured layers on kapton substrates <u>A.Fouka</u> , M.Chatzichristidi, E.Makarona, A.Kostaki	II
21	Kostopoulos Athanasios	Transforming GaN Nanocones into Uniform Nanowires: Advanced Etching Techniques for NW-FET Applications <u>A.Kostopoulos</u>	I

22	Vasileios Charalampidis	Micro-optical elements via systolic miniaturization of free-form silica aerogel masters <u>V.Charalampidis</u> , K.Papachristopoulou ,N.A.Vainos	II
23	Eleftherios Bagiokis	Functional Polymer/CsPbBr3 Nanolayers by Pulsed Femtosecond-Laser Deposition <u>E.Bagiokis</u> , A. Ioannou, Z. Orphanos, I. Koutselas, N. A. Vainos	I
24	Zannis Orphanos	Agile Fabrication of Functional 3D-Microstructures for Advanced Optical Applications <u>Z.Orphanos</u> , V. Charalampidis, K. Papachristopoulou, N. A. Vainos	II
25	Eleni Makarona	Microwave-assisted Synthesis of NiO Nanoparticles and heir Application to Composite Lithographic Resist Materials M.Chatzychristidi, P. Katsoufis, N. Stavridis, A Kontoliou, V. Psycharis and E.Makarona	I
26	Eleni Makarona	Cost-efficient CuO Nanoarchitectures for SERS Biosensing A. Dimitriou, <u>E. Makarona</u> , A. Kanioura, G. Geka, A. Kastania, A. Fouka, M. Chatzychristidi and N. Papanikolaou	II
27	Panagiotis Dimitrakellis	Low temperature plasma surface engineering of nanomaterials for applications in energy and environment <u>P.Dimitrakellis</u>	I
28	Panagiotis Dimitrakellis	From hydrophilic to hydrophobic surface modification of metals and polymer-based materials using atmospheric pressure plasma processing Panagiotis Dimitrakellis, Isabelle Géraud-Grenier, Konstantinos Kourtzanidis, Stephane Pellerin, Francois Faubert	II
29	George Tsekenis	Aptamer-ligand interactions through the unconventional use of classical biophysical techniques: New insights gained on the strength and mode of their association Christina Bizintiki, Nikitas Melios, Panagiotis Giannousas, Petros Kelemenis, Anastasios Economou, George Tsekenis	I
30	Paul Manoloudis	Development of simulation model for Schottky barrier Phonovoltaic devices with TCAD Silvaco Atlas Paul Manoloudis, Matthias Bucher and Dimitrios Tassis	II