

## **Dr Emmanouel Hourdakis**

Assistant Professor, School of Electrical and Computer Engineering, National Technical University of Athens

Research Associate, Inst. of Nanoscience & Nanotechnology

**"Energy Harvesting & Autonomous Sensors" Group**

Emmanouel Hourdakis received his Physics diploma from the University of Crete in 2001, his master's degree in physics from the University of Maryland in 2004 and his PhD degree from the University of Maryland, in collaboration with the National Institute of Standards and Technology (NIST) in 2007. In 2009 he joined the Institute of Microelectronics (now Inst. of Nanoscience & Nanotechnology, INN) at the National Center for Scientific Research "Demokritos" where he worked as a post-doctoral researcher in the "Energy Harvesting and Autonomous Sensors" (EHAS) group. In 2024 he joined the faculty of the School of Electrical Engineering (ECE) of the National Technical University of Athens (NTUA) as an assistant professor. He continues his collaboration with INN in Demokritos as a research associate of the EHAS group. His research interests focus on the electrical characterization of materials, the study of nanostructured materials and the design, fabrication and characterization of microelectronic devices, sensors and systems. More specifically, his focus recently is on the development of integrated energy harvesting and energy storage devices as well as the creation of low-power and autonomous sensors for Internet of Things (IoT) applications. His work, so far, has led to numerous journal publications, conference presentations, 3 of which were invited and 1 book chapter. He has worked on several EU and national projects and has been the scientific coordinator in one of them. He has trained and supervised many undergraduate, graduate and PhD students. He acts as a reviewer for seven international journals and has been a member of the organizing committee for 3 international and one national conference and has co-chaired one international conference.

### **2. INVOLVEMENT IN RESEARCH PROJECTS**

- "ANNA", FP6-INFRASTRUCTURES contract No. 026134\_RII3 2006-2011 (European Integrated Activity of Excellence and Networking for Nano and Micro- Electronics Analysis, Overall budget: € 7 498 619)
- "SE2A", Nanoelectronics for Safe, Fuel Efficient and Environment Friendly Automotive Solutions, JU Grant Agreement No. 12009, ENIAC Call-2008-1 2009-2011 (Overall budget: € 21 656 394)
- "Nanofunction", Beyond CMOS Nanodevices for Adding Functionalities Into CMOS, FP7 Grant Agreement No. 257375 2010-2013 (Overall budget: € 3 528 006)
- "Establishing a Multidisciplinary and Effective Innovation and Entrepreneurship Hub", E.E. 11928 (Siemens) 2016-2017
- "Micro-Capacitors for Energy Storage", Hellenic Foundation for Research and Innovation (HFRI) and the General Secretariat for Research and Technology (GSRT), grant agreement No 27361/21-02-2019 2019-2022 (Overall budget: € 119 500)
- "BioNanoDiagnostics", General Secretariat for Research and Technology (GSRT), grant agreement T2EAK-03746 2020-2023 (Overall budget: € 831 230,72)

### **3. EDUCATIONAL ACTIVITIES**

- 8/2001 to 12/2002: Graduate teaching assistant, Physics Department, University of Maryland:

Physics 262a: General Physics: Vibrations, Waves, Heat, Electricity and Magnetism: Laboratory

Physics 263a: General Physics: Electrodynamics, Light, Relativity and Modern Physics: Laboratory  
Physics 121: Fundamentals of Physics I (laboratory)

- Supervision and co-supervision of many undergraduate, graduate and PhD students at NIST, NCSR Demokritos and ECE NTUA
- Undergraduate courses (School of Electrical Engineering, NTUA, Athens, Greece):  
2<sup>nd</sup> semester) Structure and Electrical Properties of Materials  
6<sup>th</sup> semester) Semiconductor devices  
7<sup>th</sup> semester) Microelectronics and Packaging  
9<sup>th</sup> semester) Advanced materials and semiconductor devices

#### **4. CONFERENCE ORGANIZATION /COMMITTEE MEMBER**

- Micro&Nano2010, 12-15 December 2010, Athens, Greece
- Micro&Nano2015, 4-7 October 2015, Athens, Greece
- EUROSOI-ULIS2017, 3-5 April 2017, Athens, Greece
- 35th Panhellenic Conference on Solid State Physics and Materials Science, 26-29 September 2021, Athens, Greece
- Micro&Nano2024, 11-13 October 2024, Lemnos, Greece (**co-chair**)

#### **5. TECHNICAL EXPERIENCE**

- Lithography (Photo-lithography, e-beam lithography)
- Material deposition (thermal, CVD, sputtering)
- Electrochemistry (nanostructured materials creation, metal deposition, supercapacitor characterization)
- Scanning Electron Microscopy
- Electrical characterization
- Optical characterization
- Dilution refrigerator operation

**Number of Journal Publications:**

**Number of Citations:** 734, **h-index:** 14 (Scopus)

**Google Scholar:** <https://scholar.google.gr/citations?user=6Z3Qj3UAAAAJ&hl=en>  
(Citations:1028, h-index:16, i10-index:23)

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