STAVROS KITSIOS

PROCESS ENGINEER | MATERIAL SCIENTIST

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Gkanogianni 83, Athens, Greece, PC: 15773

PROFILE

Motivated and results-driven nanotechnology Ph.D. in memory devices with expertise in nanofabrication, materials synthesis, and characterization. Proven track record of leading impactful research projects, resulting in numerous publications and awards.

EDUCATION

Ph.D. in Nanotechnology 6/2019 - 10/2023
National Technical University of Athens, Greece

Thesis: Nanoelectronic Devices that Simulate the Operation of Neural Networks

M.Sc. in Applied Physics 9/2013 - 8/2016
University of Copenhagen, Niels Bohr Institute, Denmark

Thesis: Evaluation of the Muon Combinatorial Background at SHiP Experiment (Search for Hidden Particles) at CERN

B.Sc in Physics 9/2006 - 3/2013
Aristotle University of Thessaloniki, Greece

Thesis: Neutral Z-boson decay channels and Background Data Analysis

SKILLS

- Nanofabrication Techniques and Ultra High Vacuum Systems (PVD, CVD, MBE)
- Etching (dry)
- Photolithography and Electron Beam Lithography
- Characterization Methods (SEM, Profilometry, Optical Microscopy)
- Transfer of 2D Materials
- Electrical Characterization (DC, Pulse Measurements)
- Material Synthesis and Analysis
- Cleanroom Protocols
- Technical Writing and Communication

COMPUTING SKILLS

- Python
- C++
- Data Analysis
- LaTeX
- Origin
- Microsoft Office

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PROFESSIONAL EXPERIENCE

Post Doctoral Researcher **4/2024 - Present**

NCSR Demokritos, Institue of Nanoscience and Nanotechnology (INN), Athens, Greece

- **Fabrication and Electrical Characterization of Ferroelectric devices and neuromorphic applications**

Ph.D. in Nanotechnology **6/2019 - 10/2023**

National Technical University of Athens, Greece

- **Process and Development of ReRAMs and encapsulating 2D Materials in their oxide matrix for neuromorphic applications**
- **Electron Beam Lithography in 2D materials and neuromorphic engineering**

Research Intern **10/2017 - 10/2018**

University of Copenhagen, Department of Psychology, Center of Cognitive Neuroscience, Denmark

- **Data Analysis in Electrophysiological Data (EEG, MEG)**

LANGUAGES

Greek

English

French

AWARDS AND HONORS

Peer Reviewer

ACS Publications, American Chemical Society, 2022

Ph.D. Scholarship

State Scholarships Foundation (IKY), 2022-2023

CONFERENCE PARTICIPATIONS

- Conductance Properties in SiO2-based Conductive Bridge Random Access Memory with embedded MoS2, XXXV Panhellenic Conference on Solid State Physics and Materials Science, Institute of Nanoscience and Nanotechnology, NCSR 'Demokritos', September 2021 - **Presenter**
- 28th IEEE International Conference on Electronics, Circuits and Systems (ICECS), Margolus Chemical Wave Logic Gate with Memristive Oscillatory Networks, Dubai, United Arab Emirates, November 2021 - **Author**

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PUBLICATIONS

1. Kitsios, S., et al. (2022), 'Demonstration of Enhanced Switching Variability and Conductance Quantization Properties in a SiO2 Conducting Bridge Resistive Memory with Embedded Two-Dimensional MoS2 Material', **ACS Applied Electronic Materials**, 4(6), 2869-2878, DOI: **10.1021/acsaelm.2c00362**
2. Chatzinikolaou, T. P., et al., (2022), 'Chemical wave computing from labware to electrical systems', Electronics, 11(11), 1683, DOI: **10.3390/electronics11111683**
3. Tsipas, E., et al., (2022), 'Unconventional Computing With Memristive Nanocircuits', **IEEE Nanotechnology Magazine**, 16(6), 22-33, DOI: **10.1109/MNANO.2022.3208723**
4. Bousoulas, P., et al., (2022), 'Material design strategies for emulating neuromorphic functionalities with resistive switching memories', **Japanese Journal of Applied Physics**, 61(SM), SM0806, DOI: **10.35848/1347-4065/ac7774**
5. Tsipas, E., et al., (2022), 'Unconventional memristive nanodevices', **IEEE Nanotechnology Magazine**, 16(6), 34-45, DOI: **10.1109/MNANO.2022.3208789**
6. Sakellaropoulos, D., et al., (2021), 'Impact of active electrode on the synaptic properties of SiO2-based forming-free conductive bridge memory', **IEEE Transactions on Electron Devices**, 68(4), 1598-1603, DOI: **10.1109/TED.2021.3057841**
7. Bousoulas, P., et al., (2021), 'Emulating artificial synaptic plasticity characteristics from SiO2-based conductive bridge memories with Pt nanoparticles', **Micromachines**, 12(3), 306, DOI: **10.3390/mi12030306**
8. Sakellaropoulos, D., et al., (2020), 'Spatial confinement effects of embedded nanocrystals on multi-bit and synaptic properties of forming free SiO2-based conductive bridge random access memory', **IEEE Electron Device Letters**, 41(7), 1013-1016, DOI: **10.1109/LED.2020.2997565**
9. Bousoulas, P., et al., (2020), 'Investigating the origins of ultra-short relaxation times of silver filaments in forming-free SiO2-based conductive bridge memristors', **Nanotechnology**, 31(45), 454002, DOI: **10.1088/1361-6528/aba3a1**

PUBLICATIONS IN CONFERENCE PROCEEDINGS

1. Chatzinikolaou, T. P., et al., 2022, May, 'Wave cellular automata for computing applications', **In 2022 IEEE International Symposium on Circuits and Systems (ISCAS)** (pp. 3463-3467), IEEE, DOI: **10.1109/ISCAS48785.2022.9937915**
2. I. -A. Fyrigos et al., 'Compact Thermo-Diffusion based Physical Memristor Model,' **2022 IEEE International Symposium on Circuits and Systems (ISCAS)**, Austin, TX, USA, 2022, pp. 2237-2241, DOI: **10.1109/ISCAS48785.2022.9937925**
3. P. Chatzinikolaou et al., 'Unconventional Logic on Unipolar CBRAM Based Oscillators', **2022 IEE 22nd International Conference on Nanotechnology (NANO)**, Palma de Mallorca, Spain, 2022, pp. 539-542, DOI: **10.1109/NANO54668.2022.9928664**

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4. T. P. Chatzinikolaou et al., 'Memristor-based Oscillator for Complex Chemical Wave Logic Computations: Fredkin Gate Paradigm', **2022 IEEE 13th Latin America Symposium on Circuits and System (LASCAS)**, Puerto Varas, Chile, 2022, pp. 1-4, DOI: **10.1109/LASCAS53948.2022.9789083**

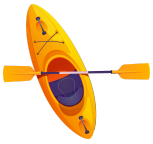
5. Chatzinikolaou, T. P., et al., 2021, September, 'Multifunctional spatially-expanded logic gate for unconventional computations with memristor-based oscillators', **17th International Workshop on Cellular Nanoscale Networks and their Applications (CNNA)** (pp. 1-5), IEEE, DOI: **10.1109/CNNA49188.2021.9610749**

6. Chatzinikolaou, T. P., et al., 2021, November, 'Margolus chemical wave logic gate with memristive oscillatory networks', **28th IEEE International Conference on Electronics, Circuits, and Systems (ICECS)** (pp. 1-6), IEEE, DOI: **10.1109/ICECS53924.2021.9665632**

7. Chatzinikolaou, T. P., et al., 2021, September, 'Memristive oscillatory networks for computing: The chemical wave propagation paradigm', **17th International Workshop on Cellular Nanoscale Networks and their Applications (CNNA)** (pp. 1-5), IEEE, DOI: 10.1109/CNNA49188.2021.9610785

8. I. -A. Fyrigos et al., 'Implementation and Optimization of Chemical Logic Gates Using Memristive Cellular Automata', **2020 European Conference on Circuit Theory and Design (ECCTD)**, Sofia, Bulgaria, 2020, pp. 1-6, DOI: **10.1109/ECCTD49232.2020.9218330**

HOBBIES AND INTERESTS


LINKEDIN PROFILE

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