

Wor	k Ex	perienc	e

2022-University of Cyprus

2022-Imperial College London

2021-2022 Imperial College London

2019-2021 Imperial College London

2014 (6 month internship)

Imperial College London

**DNA Electronics Ltd.** 

### Marie Skłodowska-Curie Actions Research Fellow

• Develop real-time gas sensing microelectronic system for early diagnosis of sepsis for patients in ICUs.

#### **Visiting Researcher**

- Graphene-coated **CMOS** Ion-Sensitive Field-Effect Transistor (ISFET) arrays.
- Train AI neural network for breathing pattern recognition from wearable sensor data.

#### Research Associate - Wearable Breathing Sensing System

• Developed low-power readout electronic system for real-time breathing monitoring.

#### **Research Associate - Electronics Manufacturing**

- Developed laser process for hermetic sealing of power electronic devices.
- Collaboration with other universities and industry in UK.

#### **Electronic Engineer**

• Model CIC filter in MATLAB and implement on FPGA.

London 2013 (10 weeks)

#### Undergraduate Research Project

Research Gallium Nitride Devices for Alternate-Arm Power Converter



2015-2019 Imperial College London

#### PhD in Graphene-based microelectronic sensors

- Thesis Title: Graphene inspired sensing devices
- Designed CMOS ISFET pH sensor array chip
- Developed Polymer Assisted Graphene Transfer (PAGT) Process
- **Proved** that **suspended graphene** on Silicon nanowire arrays performs better as gas sensor than when supported on solid substrates.
- **Pioneered plasma post-processing** and **graphene coated** CMOS ISFET arrays for improved performance.

2011-2015 Imperial College London

#### MEng and ACGI Electrical & Electronic Engineering 1st Class Honours

• Final year project: CMOS ISFET model in COMSOL Multiphysics and Sentaurus TCAD

#### CURRICULUM VITAE

Funding		
2022 The IET travel award	Travel Grant for IEEE Sensors Conference	£1125
2022-2024 EU Commission Horizon Europe	Marie Sklodowska Curie Actions Research Fellowship	€148,000
2018 Old Centralian's Trust	Travel Grant for ISDTM-ICSI conference	£400
2017 Imperial College London	Travel grant for MNE conference	£300

# Peer-reviewed Scientific Journal Papers

- [9] M. Constantinou, C. Panteli, L. Potamiti, M. Panagiotidis, A. Agapiou, S. Christodoulou, C. Andreou, "Advancing Breath Diagnostics: 3D Mesh SERS Sensor via Dielectrophoretic Alignment of Solution-Processed Au Nanoparticle Decorated TiO<sub>2</sub> Nanowires", Wiley-VCH, Submitted 2023
- [8] Malik, Faraz K., **C. Panteli**, K. Goel, N. Moser, P. Georgiou, and K. Fobelets. "Improved Stability of Graphene-Coated CMOS ISFETs for Biosensing". *IEEE Transactions on Biomedical Circuits and Systems"*, 2023. get article
- [7] K. Fobelets, **C. Panteli**, G. Hammour, "Simultaneous Breathing and ECG Measurements with e-Knits". *Engineering Proceedings*. 2023; 30(1):5. <u>get article</u>
- [6] K. Fobelets, **C. Panteli**, "Ambulatory Monitoring Using Knitted 3D Helical Coils", *Engineering Proceedings*, vol. 15 (1), pp. 6, 2022, <u>get article</u>
- [5] Y. Zhong, S. Robertson, W. Mirihanage, **C. Panteli**, S. Liang, S. Ramachandran, Z. Zhou, A. Holmes, A. Yu Liu, F. Wu, S. Haigh, C. Liu, "Fast in-situ synchrotron X-ray imaging of the interfacial reaction during self-propagating exothermic reactive bonding", *Materialia* 23, pp. 101444, 2022, <u>get article</u>
- [4] **C. Panteli**, P. Georgiou, K. Fobelets, "Reduced drift of CMOS ISFET pH sensors using graphene sheets", *IEEE Sensors Journal*, vol. 21, no. 13, pp. 14609-14618, 1 July, 2021, <u>get article</u>
- [3] N. Moser, **C. Panteli**, K. Fobelets and P. Georgiou, "Mechanisms for enhancement of sensing performance in CMOS ISFET arrays using reactive ion etching", *Sensors and Actuators B: Chemical*, vol. 292, pp. 297-307, 2019 <u>get article</u>
- [2] **C. Panteli**, P. Georgiou and K. Fobelets, "Performance Improvement of Commercial ISFET sensors using Reactive Ion Etching", *Microelectronic Engineering*, vol. 192, pp. 61-65, 2018 get article
- [1] K. Fobelets, **C. Panteli**, O. Sydoruk, C.B. Li, "Ammonia Sensing using Arrays of Silicon Nanowires and Graphene", *Journal of Semiconductors*, vol. 39 (6), pp. 063001, 2018 <u>get</u> <u>article</u>

### Peer-reviewed Conference Proceedings

- [8] C. Panteli, M. Stylianou, A. Anastasiou and C. Andreou, "Rapid Detection of Bacterial Infection using Gas Phase Time Series Analysis", *IEEE Sensors* 2023, Vienna, 29 October – 1 November 2023
- [7] K. Goel, **C. Panteli**, N. Moser, and P. Georgiou, "Reducing Drift in CMOS ISFET Arrays with Monolayer Graphene Sheets", *IEEE BioCAS*, Taipei, 13-15 October 2022
- [6] **C. Panteli**, P. Georgiou, K. Fobelets, "Graphene-coated CMOS ISFETs for pH sensing", *European Graphene Forum*, Lisbon Portugal 23-25 October, 2019
- [5] **C. Panteli**, X. Zhu, O. Sydoruk, K. Fobelets, "Graphene on Si nanowire arrays as solvent vapour sensor", *ISTDM-ICSI*, Potdam Germany, 27-31 May, 2018
- [4] N. Moser, **C. Panteli**, D. Ma, C. Toumazou, K. Fobelets and P. Georgiou, "Improving the pH Sensitivity of ISFET Arrays with Reactive Ion Etching", *IEEE BioCAS*, Turin Italy, 19-21 October, 2017
- [3] **C. Panteli**, N. Moser, P. Georgiou and K. Fobelets, "Optimising the Performance of Commercial ISFET sensors using Reactive Ion Etching", *Micro and Nano Engineering Conference*, Braga Portugal, 18-23 September, 2017
- [2] C. Panteli, O. Sydoruk and K. Fobelets, "Graphene Suspended on Silicon Nanowire Arrays for Enhanced Gas Sensing", 231st Electro-Chemical Society Meeting, New Orleans US, 28 May - 1 June, 2017
- [1] **C. Panteli**, D. Liu, O. Sydoruk and K. Fobelets, "Through-Graphene Etching of Porous Si by Electroless Metal Assisted Chemical Etching", *Micro and Nano Engineering Conference*, Vienna Austria, 19-23 September, 2016

## Talks and Presentations

06/09/2023	European Researchers Night - Researchers' Spotlight Stories	
15/02/2023	Non-invasive biomedical sensors for breath analysis University of Cyprus Seminar	
02/11/2022	Invited journal paper - IEEE Sensors conference Dallas Texas Highest number of downloads on IEEE website	
11/07/2022	Marie Sklodowska Curie Actions (MSCA) EU Information Day Invited successful MSCA fellow	
20/01/2021	The future of non-invasive biomedical sensing University of Cyprus Seminar	
23/09/2020	Non-invasive biomedical sensing University of Cyprus Seminar	
20/12/2017	Suspended Graphene on Silicon nanowire arrays for gas sensing University of Cyprus Seminar	



## Honours and Awards

2017	Graduate Teaching Assistant of the Year Faculty of Engineering Imperial College London
2015-2019	<b>Biomedical Engineering Research Scholarship</b> A. G. Leventis Foundation Award
2015-2019	<b>Doctoral Training Award</b> Engineering and Physical Sciences Research Council
2015	Excellence in Analogue Electronics Award Nicholas Battersby Prize Imperial College London

## 📶 Teaching and Supervision

2023-	ECE665 Instrumentation and Measurement University of Cyprus
2015-	Coursework Leader and Lecturer Imperial College London Advanced Electronic Devices – MSc level
2015-2019	<b>Teaching Assistant</b> Imperial College London • Semiconductor Electronic Devices – Undergraduate level • Analysis and Design of Circuits – Undergraduate level
2017-	<ul> <li>Supervisor Undergraduate Final Year Project</li> <li>2021-2022 Karina Goel – Imperial College London EEE graduate: published in IEEE BioCAS 2022 conference.</li> <li>2017-2018 Xingzi Zhu – Imperial College London EEE graduate: published in ISTDM-ICSI 2018 conference.</li> </ul>
2017-	Summer students • Summer 2023 Faidra Zika – UCY Physics graduate • Summer 2018 Sara Emme – Imperial College London
Professional Ser	rvices
2011-	Reviewer in IEEE Sensors Journal
Professional Me	mberships
2011-	IEEE
2011-	Institute of Engineering and Technology
Other Work Expe	erience

2011-2012	<b>Lifeguard summer season</b> Ministry of Internal Affairs, Cyprus
2009-2011	<b>Special Forces Lieutenant</b> Ministry of Defence, Cyprus