## Curriculum Vitae

## Research highlights

- **DESIGN AND FABRICATION OF MICROFLUIDICS DEVICES AND MICRO-LABORATORIES ON CHIP. DESIGN, FABRICATION AND CHARACTERIZATION OF SENSORS BASED ON POLYMERS AND GRAPHENE FAMILY MATERIALS (e.g. STRAIN, CHEMICAL AND BIOLOGICAL),**
- **JOURNAL PUBLICATIONS: 8**
- **CONFERENCE PROCCEDINGS: 8**
- **CONFERENCE ANNOUNCEMENTS: 10**
- **NUMBER OF REFERENCES: 216 (google scholar)**
- **h-index: 7 (google scholar)**
- **Google scholar profile:**

**https://scholar.google.gr/citations?user=1K5CZtwAAAAJ&hl=en&oi=ao**

- **Scopus profile:**

**https://www.scopus.com/authid/detail.uri?authorId=55000410600**

## Work experience

- **2022-Present**

**Institute of Nanoscience and Nanotechnology, NCSR Demokritos**

Research program: ‘‘MICSYS - Water pollution detection system based on microfluidic device, under the call RESEARCH–CREATE–INNOVATE’’

- **Design and fabrication of the microfluidic device**

- **11/2018-2021**

**Institute of Nanoscience and Nanotechnology, NCSR Demokritos**

Research program: ‘‘DIAMOND - Rapid, timely diagnosis and monitoring of microbial diseases by means of an automated, point of care system’’, under the call RESEARCH–CREATE–INNOVATE "

- **Development of sensors integrated inside a lab on a chip for the detection of biological interactions**
- **Development of graphene based electronic devices**

- **2016**

**Institute of Nanoscience and Nanotechnology, NCSR Demokritos**

Research project: *‘‘LoveFood2Market – A portable MicroNanoBioSystem and Instrument for ultra - fast analysis of pathogens in food: Innovation from LOVE-FOOD lab prototype to a precommercial instrument”. H2020 EU project*

- **Development and characterization of an integrated microfluidic system for the detection of food pathogens**

- **2014-2015**

**Institute of Nanoscience and Nanotechnology, NCSR Demokritos**

Research project: ‘‘PEISMON - Development of pesticide concentration monitoring systems for safe food production"

- **Development and characterization of chemical nanoparticle sensors**

- **2013-2014**

**Institute of Nanoscience and Nanotechnology, NCSR Demokritos**

Research program: ‘‘LOVE FOOD –Love wave fully integrated Lab- on- Chip platform for food pathogen detection’’.

- **Fabrication of the biosensors**

- **2010-2012**

**Institute of Nanoscience and Nanotechnology, NCSR Demokritos**

Research Program: ‘‘Corallia - Microelectronics Components for Lab-On-Chip Instruments in Molecular Diagnostics for Genetics and Environmental Applications’’

- **Fabrication and characterization of biosensors**
- **DNA hybridization**

## Education

- **2013-9/2019**

**Institute of Nanoscience and Nanotechnology, NCSR Demokritos, School of Applied Mathematical and Physics Science-National technical university of Athens**
**PHD: ''Flexible sensor devices''**

- Fabrication and characterization of sensors based on polymers and graphene family materials
- Sensor types: strain, chemical and biological

- **2008-2010**

**National Kapodistrian University of Athens, Telecommunications and Informatics Department, Institute of Nanoscience and Nanotechnology, NCSR Demokritos**
**MSc in Microelectronics (7.15)**

- MSc thesis subject: Biological interactions using micromechanical silicon sensors (9,5)

- **2003-2007**

**Physics Major in Electronics / Computers - Telecommunications / Automation, National Kapodistrian University of Athens, Physics Department (7.27)**

- BSc thesis subject: A study on silicon targets using charged particles and X-Rays, which was elaborated on Institute of Nuclear Physics at NCSR "Demokritos" (10)

## Educational activities

**2013-present**
Co-supervision and training of undergraduate and postgraduate students at the Institute of Nanotechnology and Nanoscience of NCSR Demokritos

## Languages

**English**

- Certificate of Proficiency in English, University of Michigan
- First Certificate in English, University of Cambridge

**German**

- Zertifikat, Goethe-Institut

## Other skills and abilities

- Fabrication of sensors based on materials of the carbon family
- Design, fabrication and characterization of sensors
- Experience in the design and fabrication of microfluidic devices and micro-laboratories in chip
- Work experience in a clean room
- Manufacturing processes in microelectronics
- Work experience in microfabrication techniques
- Optical Lithography
- Electrical and morphological characterization of micro-mechanical devices

## Computer Skills

- Mask design softwares
- Printed circuit board design software (printed circuit board, pcb) for microfluidic devices e.g. kicad
- Excellent knowledge in data display and word processing software
  Microsoft Office (Word, Excel, PowerPoint), Origin Lab

## Publications in peer-reviewed journals

**1.** Isothermal recombinase polymerase amplification (RPA) of E. coli gDNA in commercially fabricated PCB-based microfluidic platforms, Maria Georgoutsou-Spyridonos, Myrto Filippidou, Georgia D Kaprou, Dimitrios C Mastellos, Stavros Chatzandroulis, Angeliki Tserepi,. Micromachines, 2021, 12(11), 1387

**2.** A fabrication process of flexible IDE capacitive chemical sensors using a two step lift-off method based on PVA patterning, MK Filippidou, M Chatzichristidi, S Chatzandroulis, Sensors and Actuators B: Chemical, 2019, 284, 7-12.

**3.** Detection of BRCA1 gene on partially reduced graphene oxide biosensors, MK Filippidou, CM Loukas, G Kaprou, E Tegou, P Petrou, S Kakabakos, A Tserepi, S Chatzandroulis, Microelectronic Engineering 2019, 216, 111093.

**4.** Nanoparticle based gas-sensing array for pesticide detection, L Madianos, E Skotadis, L Patsiouras, MK Filippidou, S Chatzandroulis, D. Tsoukalas, Journal of environmental chemical engineering, 2019, 6 (5), 6641-6646

**5.** Low-temperature thermal reduction of graphene oxide films in ambient atmosphere: Infra-red spectroscopic studies and gas sensing applications, E. Tegou, G. Pseiropoulos, M.K. Filippidou, S. Chatzandroulis, Microelectronic Engineering, 2016, 15,9 146–150.

**6.** A flexible strain sensor made of graphene nanoplatelets/ polydimethylsiloxane nanocomposite, M.K. Filippidou, E. Tegou, V. Tsouti, S. Chatzandroulis, Microelectronic Engineering, 2015, 142, 7–11.

**7.** Heavy metal ion detection using a capacitive micromechanical biosensor array for environmental monitoring, G. Tsekenis, M.K. Filippidou, M. Chatzipetrou, V. Tsouti, I. Zergioti, S. Chatzandroulis, Sensors & Actuators: B., 2015, 208, 628-635.

**8.** Self-aligned process for the development of surface stress capacitive biosensor arrays, Tsouti V., Filippidou M.K., Boutopoulos C. , Broutas P., Zergioti I., Chatzandroulis, S., Sensors & Actuators: B.,2012, 815-818.

## Publications in indexed conference proceedings

**1.** Design and implementation of a re-configurable embedded system for capacitive sensor array interface, Zafeirakis, I, Filippidou, M.-K, Chatzandroulis, S., Kyriakis-Bitzaros, E.D., Stathopoulos, N., Vassiliadis, S., 2018 7th International Conference on Modern Circuits and Systems Technologies, MOCAST 2018

**2.** All laser printed resistive chemical sensor: Fabrication and evaluation, S. Papazoglou, M. Makrygianni, I. Zergioti, M. Filippidou, S. Chatzandroulis, 2016 IEEE SENSORS

**3.** Design and fabrication of a lab-on-a-chip (LOC) incorporating DNA amplification and detection on partially reduced graphene oxide biosensors, Filippidou, M., Stamouli, A., Tegou, E., Kaprou, G., Petrou, Y., Tserepi, A., Chatzandroulis, S, 20th International Conference on Miniaturized Systems for Chemistry and Life Sciences, MicroTAS 2016

**4.** Integrated biochip for PCR-based DNA amplification and detection on capacitive biosensors, D. Moschou, N. Vourdas, M. K. Filippidou, V. Tsouti, G. Kokkoris, G. Tsekenis, I. Zergioti, S. Chatzandroulis, A. Tserepi, Progress in Biomedical Optics and Imaging - Proceedings of SPIE, 2013, 8765

**5.** Biosensors by means of laser induced forward transfer technique, Chatzipetrou, M., Tsekenis, G., Filippidou, M.K., Tsouti, V., Thanos, D., Chatzandroulis, S., Zergioti, I., 2012 Conference on Lasers and Electro-Optics, CLEO 2012

**6.** Self-aligned process for the development of surface stress capacitive biosensor arrays, Tsouti, V. Filippidou, M., Boutopoulos, C., Broutas, P., Zergioti, I., Chatzandroulis, S., Procedia Engineering Volume 25, 2011, Pages 835-838

**7.** Design and implementation of a re-configurable embedded system for capacitive sensor array interface, Ioannis Zafeirakis, Myrto-Kyriaki Filippidou, Stavros Chatzandroulis, Efstathios D Kyriakis-Bitzaros, Nikolaos Stathopoulos, Savvas Vassiliadis, 2018 7th International Conference on Modern Circuits and Systems Technologies (MOCAST)

**8.** All laser printed resistive chemical sensor: Fabrication and evaluation, S Papazoglou, M Makrygianni, I Zergioti, M Filippidou, S Chatzandroulis, 2016 IEEE SENSORS

## Conference announcements

**1.** Laser printing of oligonucleotides on a micro-membrane array for DNA mutations detection, C. Boutopoulos, M.K. Filippidou, V. Tsouti, D. Kafetzopoulos, S. Chatzandroulis, I. Zergioti, (Micro & Nano 2010)

**2.** Laser Induced Forward Transfer of thiol modified oligonucleotides on GOPTS/LTO capacitive sensors and onto non-functionalized rough LTO surfaces, M. Chatzipetrou, G. Tsekenis, M.K. Filippidou, V. Tsouti, A. Malainou, D. Thanos, A. Tserepi, S. Chatzandoulis, I. Zergioti (COLA, November 13-19, 2011, Poster)

**3.** Biosensors by means of laser Induced Forward Transfer technique, M. Chatzipetrou, G. Tsekenis, M.K. Filippidou, V. Tsouti, S. Chatzandroulis, I. Zergioti ( E-MRS, May 14-18, 2012, Poster)

**4.** All-printed reduced graphene oxide gas sensors, Symeon Papazoglou, Marina Makrygianni, Myrto K. Filippidou, Stavros Chatzandroulis, Ioanna Zergioti (SPIE 2015)

**5.** A Chemical Sensor Fabricated by a Versatile, Two Step Lift-off Method Using PVA Film as Sacrificial Layer to Precisely Pattern its Chemically Selective Layer, M.K. Filippidou, M. Chatzichristidi, V. Tsouti, E. Tegou, S. Chatzandroulis (MNE 2014, Poster)

**6.** A Flexible Strain Sensor Made of Graphene Nano Platelets /Polydimethylsiloxane Nanocomposite, M.K. Filippidou, E. Tegou, V. Tsouti, S. Chatzandroulis (MNE 2014, Poster)

**7.** Electrical detection of bacteria on reduced graphene oxide surfaces, E. Tegou, A. Katsogridaki, M.K. Filippidou, A. Ioannidis, S. Chatzipanagiotou, G. Tegos, S. Chatzandroulis (Micro &Nano 2015, Poster)

**8.** Graphene Nanoplatelet/Polymer Composite Sensors for Volatile Organic Compounds Detection, M.K. Filippidou, V.Liakopoulos, E. Tegou, M. Chatzichristidi, S. Chatzandroulis (Micro &Nano 2015, Poster)

**9.** Aptamer-based bioassay for the sensitive detection of atrazine, L. Madianos, M.K. Filippidou, G. Tsekenis, E. Skotadis, S. Chatzandroulis, D. Tsoukalas (Micro &Nano 2015, Poster)

**10.** A POINT-OF-CARE PLATFORM FOR RAPID DETECTION OF URINARY TRACT INFECTIONS, Myrto Filippidou, Maria Georgoutsou-Spyridonos, Sotiris Douskas, A. Nikolakakis,Panagiota Petrou, Dimitris Mastellos, Stavros Chatzandroulis, Angeliki Tserepi (Hellenic Biocluster and the Micro Nano Scientific Society of Greece 2020, WEBINAR)