europass Curriculum vitae

PERSONAL INFORMATION

Alexandra Karina Gheorghe



405A, Magurele, Romania

+40720314415

karina.gheorghe@incdfm.ro gheorghealexkarina@gmail.com

Date of birth 2 October 2002 | Nationality Romanian

WORK EXPERIENCE

August 2024 – Current

Scientific Researcher (ACS – Assistant Scientific Researcher)

National Institute of Material Physics, Romania (Bucharest)

- Characterise the morphology and elemental composition of nanostructured materials using scanning electron microscopy (SEM) and energy-dispersive X-ray spectroscopy (EDX), respectively.
- Carry out photolithography and magnetron sputtering for the fabrication of microelectrodes and thin-film structures.
- Grow ZnO nanowires by electrochemically depositing metals and subsequently oxidising them thermally.

March 2023 – August 2024

Technician

National Institute of Material Physics, Romania (Bucharest)

- Continued work on nanowire growth in polymer membranes using electrochemical methods.
- Carried out magnetron sputtering depositions for thin films.
- Trained in and applied photolithography techniques, including sample preparation and processing.
- Supported research activities through experimental setup, fabrication, and process optimization.

July 2021 – March 2023

Internship

National Institute of Material Physics, Romania (Bucharest)

- Gained hands-on experience in the growth of nanowires within polymer membranes.
- Performed thin film depositions using magnetron sputtering techniques.
- Conducted electrochemical deposition processes for nanostructured materials.
- Acquired foundational laboratory skills in nanofabrication and materials characterization.

EDUCATION AND TRAINING

2026–Present

PhD Student in Physics

University of Bucharest, Faculty of Physics

PhD Thesis: Functionalised Advanced Nanostructured Devices with Neuromorphic Architecture.

Research focus: Development of three-dimensional memristive devices based on vertically aligned nanowire arrays for neuromorphic computing.

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2024–2026 **Master of Science in Physics — Physics of Advanced Materials and Nanostructures,**

University of Bucharest, Faculty of Physics

Master's Thesis: Microfabrication of semiconductor nanostructures using lithographic methods for optoelectronic devices

- Fabricated Ti/Pt interdigitated electrodes by photolithography and magnetron sputtering.
- Prepared ZnO/ZnSe core–shell nanowires and characterised them using SEM, EDX, XRD and optical measurements.
- Assisted with electron-beam lithography to contact an individual nanowire and measured its current–voltage characteristics.

2021–2024 **Bachelor of Science in Physics**

University of Bucharest, Faculty of Physics

Bachelor's Thesis: Lithographic Methods Used for the Development of Electronic Devices.

RESEARCH AND TECHNICAL SKILLS

Micro- and nanofabrication	Photolithography, RF magnetron sputtering, electrochemical deposition and thermal oxidation. Experience assisting with electron-beam lithography (EBL).
Materials characterisation	Scanning electron microscopy (SEM), energy-dispersive X-ray spectroscopy (EDX), X-ray diffraction (XRD) and optical characterisation.
Electrical characterisation	Current–voltage (I–V) measurements on individual nanowire devices.

RESEARCH PROJECTS

2026–2030 **Excellence Center of Advanced Responsive Materials (ARMAT)**

Project code: PN-IV-P6-6.1-CoEx-2024-0187

Coordinating institution: National Institute of Materials Physics (INCDFM)

Role: Assistant Scientific Researcher

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