

## CURRICULUM VITAE

# NIKOLAOS E. CHATZARAKIS

Date of Birth: 18.05.1992

University of Crete, Department of Materials Science and Technology

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## EDUCATION

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**Master of Science** in «Photonics and Nanoelectronics», Department of Physics, **University of Crete**, 2017, GPA: 7.04/10

**Bachelor of Science**, Physics, Department of Physics, **University of Crete**, 2015, GPA: 7.18/10

## RESEARCH EXPERIENCE

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**Ph.D. Student**, working in research in Quantum Dots, Department of Materials Science and Technology, **University of Crete**. Supported in this work by a Postgraduate Scholarship by the Foundation for Research and Technology (FORTH), **10.2018 – Present**.

**Research for** the requirements of the **M.Sc. Thesis**, at the University of Crete, Department of Physics, involving the study and fabrication optimization of photodetectors based on Transition Metal Dichalcogenides. A research project under the supervision of professor George Deligeorgis, in collaboration with the Foundation for Research and Technology (FORTH) and the Microelectronics research group (MRG), **09.2011 – 07.2015**

- A chemical vapor deposition technique was used to obtain a large area of high quality ultrathin MoS<sub>2</sub>, suitable for large-scale applications. We performed the Raman and photoluminescence analysis to optically characterize the material. We carried out Electrical measurements under dark conditions to test the performance of metal contacts which is a key element of devices and test devices, at different stages of the treatment, such as after annealing and passivation with dielectric film. Finally, we collected preliminary photosensitivity data, using a low power white light source. We found that even without downscaling the photodetectors to nanometric size, there was a significant gain in photo-sensitivity, as result of this treatment.

## SCHOLARSHIPS

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**Postgraduate Scholarship**, for the research for the Ph.D. degree by the Foundation for Research and Technology (FORTH), **10.2018 – Present**.

## TECHNICAL EXPERIENCE & SKILLS

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### -Sample characterization

- Raman Spectroscopy
- Photoluminescence Spectroscopy

- Micro-Photoluminescence Spectroscopy
- Electrical characterization of thin film devices
- Atomic Force Microscopy on thin films
- Optical characterization with Scanning Electron Microscope
- Photon lifetime measurements
- Correlation and cross-correlation photon measurements

#### **-Fabrication**

- Chemical Vapor Deposition (CVD) technique for 2D film fabrication
- Optical lithography using mask
- Electron Beam Lithography
- Electron Beam Physical Vapor Deposition on thin film semiconductors
- Vacuum annealing

#### **-Other**

- Laser systems: He:Cd (UV), Femtosecond Ti:Sapphire , 532nm diode pumped laser
- Turbo pumps
- CCD camera operation ( liquid N<sub>2</sub> cooled)
- Cryogenics (10K Helium and 70K Nitrogen cryostats)
- Optical alignment

## **TEACHING EXPERIENCE**

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**01.2014 - 05.2015:** Assistant in the undergraduate lab course «Mechanics and Thermodynamics laboratory» (as a B.Sc. student). Responsible for the experiments:

- Free Fall
- Liquid Viscosity

**10.2015 – 05.2016:** Assistant in the undergraduate lab course «Advanced Physics laboratory» (as MSc student). Responsible for the experiments:

- Zeeman Effect
- Photoelectric effect

## **MILITARY SERVICE**

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**12.2017 – 09.2018.** Served in the School of Telecommunications and Electronics of the Hellenic Army Signaling Corps Officers, Athens.

## **COMPUTER SKILLS**

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**Operating Systems:** Windows, Linux, MacOS

**Programming Languages:** MATLAB, FORTRAN, C++, ORIGIN, LabVIEW, HTML, wolfram.

**Text processing Software:** Microsoft Office, Open office, Libre office, LaTeX

## **LANGUAGES**

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**Greek:** Native Language

**English:** MICHIGAN STATE UNIVERSITY PROFICIENCY

**French:** DELF B1 (IFA)