

# NAFSIKA MARIA MOUTI

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## EDUCATION

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### National Technical University of Athens

School of Applied Mathematical & Physical Sciences  
(2-year Master Diploma)

**Major:** Microstructures & Nanodevices

*Oct.2020-Feb.2022*

### University of Ioannina

Physics Department  
(4-year Bachelor of Science in Physics)

*Oct.2013-Jun.2019*  
**GPA:** 6.65/10 (top 28%)

### 3rd High School of Kifissia, Athens, Greece

General Certificate of Secondary Education, Valedictorian

*2010-2013*  
**GPA:** 18.3/20

## RESEARCH EXPERIENCE

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### Research Fellow

Lab for Electron Microscopy and Nanomaterials, Institute of Nanoscience & Nanotechnology ([inn.demokritos.gr](#))  
Environmental Radioactivity Laboratory ([ipta.demokritos.gr](#))

NCSR Demokritos

Working on Project: •Nano4CSP ([nano4csp.cyi.ac.cy](#))

Supervisor: [Dr. K. Giannakopoulos](#)

Supervisor and Trainee Trainer

Scanning Electron Microscope trainer to Institute Researchers

*Oct.2019-Present*

**Postgraduate Thesis Topic:** Synthesis and characterization of Spark Discharge generated aerosol nanoparticles, focusing on their deposition on various substrates.

### Undergraduate Researcher

Laboratory of Physical-Chemistry of Materials and Environment, Department of Physics, UOI ([nanomaterials.physics.uoi.gr](#))

Laboratory of Catalysis, Department of Chemistry, UOI ([catalysis.chem.uoi.gr](#))

Working on Bachelor Thesis

Supervisors: [Prof. Y. Deligiannakis](#), [Dr. Y. Georgiou](#)

[Photocatalytic Hydrogen Production through Water Splitting](#)

**GPA:** 10/10

**Thesis Topic:** The subject of the thesis is the photocatalytic production of hydrogen through water splitting, using TiO<sub>2</sub> nanoparticle photocatalyst. Specific tasks were [a] Spectroscopic analysis of particles by means of DRS techniques (to find the photocatalysts' energy gap), XRD (for the determination of phases, size and specific surface area of particles). [b] The photocatalytic hydrogen production rate study through water splitting, using titanium dioxide as a photocatalyst, and the dependence on various parameters. [c] Mechanical optimizations and tests both in the preparation of the photocatalyst suspension and in the photocatalysis process (different conditions, scavengers, lamps). Over 44% mean improvement in photocatalytic efficiency over the industrial P25 when using UOI's lab FSP made nanocatalysts.

*Oct.2018-Jul.2019*

## OTHER WORK EXPERIENCE

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- Web & Social Media Promotion and Development of "Materials Future" [website](#) [t](#) [f](#) *Mar.2020-Present*
- Tutor for High School and Physics, Economics and Engineering Undergraduate Students *Sept.2014-Present*

## TECHNICAL SKILLS (HANDS-ON EXPERIENCE)

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**Programming Languages and Frameworks:** C, MATLAB, Python, LaTeX, Javascript, HTML, CSS, PHP, Wix, Wordpress, Umbraco

**User of:** Windows, Microsoft Office Tools, Google Tools, MS Teams, Slack

**Programs:** Matlab/Sage, OriginLab, Labview, VMD, Multisim, Adobe Premiere, Prolith (Lithography), *etch(plasma-etching)*

## LABORATORY TECHNIQUES

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•Scanning Electron Microscope (SEM) •Magnetron Sputtering •Spark Discharge Generator •TEM cross section sample preparation •Atomic Force Microscopy (AFM) image analysis •Raman Spectroscopy •Flame Spray Pyrolysis (FSP) •Nanomaterial Characterization by natural, spectroscopic techniques: Structure characterization by X-ray diffraction (XRD) •Determination of Semiconductor Energy Gap by Diffuse Reflectance UV-Vis Spectroscopy (DRS) •Characterization of Nanomaterials by FTIR Spectroscopy •Creating devices and performing photocatalysis experiments •Gas Characterization through gas chromatography (GC)

## LANGUAGES

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•**Greek:** Native Language •**English:** C2 •**Spanish:** B1 •**French:** A2

## SEMINARS, WEBINARS, WORKSHOPS & CONFERENCES

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**Training CA19110 “Plasma applications for smart and sustainable agriculture” PIAgri** *Mar.2021*  
**SETN 2020-11th Hellenic Conference on Artificial Intelligence** *Sep.2020*  
**SAS webinar “Molecular Spectroscopy in Practice, Raman Spectroscopy”** *Jul.2020*  
**Workshop Leader at ECOWEEK, online 48h challenge for circular economy** *May.2020*  
**Webinar “Patents and IP Rights: From research to patents”, NTUA, Archimedes CRIE** *May.2020*  
**Webinar “Lean Startup: From Idea to Market”, NTUA, Archimedes CRIE** *May.2020*  
**Seminars on “Microscopy Techniques” - INN, NCSR “Demokritos”** *Nov.2019*  
**Advanced Training Course “Spintronics Radar Detectors”, NATO, Demokritos** *Oct.2019*  
**Scientific Seminar “About Birth and Decay”, Department of Chemistry, UOI** *May.2019*  
**“15th Hellenic Catalysis Symposium”, Department of Chemistry, University of Ioannina** *Oct.2018*  
**“Learning Difficulties”, Interdisciplinary Center of Epirus, Ioannina** *Mar.2015*

## POSTER PRESENTATION

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**Optimization of Production Parameters for Copper and Gold Nanoparticles by Spark Discharge Generator** N. Mouti, M. Lasithiotakis, S. Vratolis, A. Douzenis, M. Gini, K. Eleftheriadis, K. Giannakopoulos presented in **EUROMAT 2021** *Sep.2021*


## SOFT SKILLS

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Critical Thinking, Problem Solving, Flexible & Dependable, Interpersonal Skills, Intrinsically Motivated.

## VOLUNTEERING

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**ECOWEEK** Administration, Logistics, Media & Workshop Assistance  *Jul.2020-Oct.2021*  
**Blood Donor** *2017- Present*