

# ILIAS PAPAILIAS

**Date of birth:** 04/01/1986

**Nationality:** Greek

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## EDUCATION AND TRAINING

- July 2015 - June 2020: **PhD Degree**  
School of Chemical Engineering, National Technical University of Athens, Greece  
“Development of novel photocatalysts with pyrolysis techniques for environmental and energy applications”
  - Synthesis of g-C<sub>3</sub>N<sub>4</sub> composite materials with pyrolysis techniques
  - Photocatalytic oxidation of air pollutants
  - Photocatalytic hydrogen production
- September 2003 - September 2008: **Diploma in Chemical Engineering**  
School of Chemical Engineering, National Technical University of Athens, Greece  
(Specialization in “Food science - Biotechnology”)
- March 2008 - August 2008: **Thesis**  
Institute of Physical Chemistry, NCSR “Demokritos”, Athens, Greece  
“Evaluation of the antioxidant activity of phenolic compounds with fluorescence spectroscopy”
- October 2007 - January 2008: **Internship**  
Institute of Physical Chemistry, NCSR “Demokritos”, Athens, Greece
  - Implementation of the chemiluminescence method
  - Elemental analysis of organic compounds

## TRAINING PROGRAMMS / SEMINARS

- “Spectroscopy seminars”, NCSR “Demokritos”, Athens, Greece (May 2019 - June 2019)
- “Microscopy seminars”, NCSR “Demokritos”, Athens, Greece (October 2018 - November 2018)
- “Lean Six Sigma - Yellow Belt Training”, University of Piraeus & TUV Austria Hellas (November 2016 - December 2016)
- “Application of new Ultra-High Pressure, Pulsed Electric Fields and Ozonation techniques for the improvement of Greek fruit and vegetable quality and productivity”, School of Chemical Engineering, National Technical University of Athens (October 2015)
- “Strategic Management”, Hellenic Open University (April 2014 - June 2014)

## PROFESSIONAL EXPERIENCE

- September 2014 - Today: **Research Assistant**  
Institute of Nanoscience and Nanotechnology, NCSR “Demokritos”, Athens, Greece  
“2D Photocatalytic heterostructures for air pollutants oxidation – 2D Photostructure”
  - Photocatalytic removal of NO<sub>x</sub> and acetaldehyde
  - Evaluation of antibacterial activity“Development of nanocomposite and nanofunctional materials – NanoMAT”
  - Synthesis and characterization of visible light active photocatalysts

“Development of TiO<sub>2</sub>/Graphene nanocomposites for photocatalytic hydrogen production – IKYDA 2015”

- Synthesis of TiO<sub>2</sub> nanostructures with controlled crystal facets
- Photocatalytic hydrogen production

“Photoactive TiO<sub>2</sub>/Graphene containing paints for air purification – PhotoTiGRA”

- Development of TiO<sub>2</sub>/Graphene containing paints
- Photocatalytic activity for air purification

- May 2009 - February 2010: **Chemist** (during mandatory military service)  
Athletic Training Department, Air Force Academy, Athens, Greece
  - Maintenance and chemical preservation of swimming pools
- March 2009 - April 2009: **Chemist** (during mandatory military service)  
Quality Control Administration, Elefsina Air Force Base, Athens, Greece
  - Laboratory analysis of fuels
  - Quality control of greases and lubricants
  - Spectroscopic analysis of oils

## TEACHING EXPERIENCE

- October 2017 - May 2018 & October 2018 - May 2019: **Physical Chemistry II & III**  
School of Chemical Engineering, National Technical University of Athens, Greece
  - Preparation and supervision of laboratory exercises
  - Examination of students and evaluation of essays

## PUBLICATIONS

- **I. Papailias**, N. Todorova, T. Giannakopoulou, D. Dvoranová, V. Brezová, D. Dimotikali, C. Trapalis, “Selective removal of organic and inorganic air pollutants by adjusting the g-C<sub>3</sub>N<sub>4</sub>/TiO<sub>2</sub> ratio”, Catal. Today 361 (2021) 37-42. **(IF: 4.888)**
- N. Todorova, **I. Papailias**, T. Giannakopoulou, N. Ioannidis, N. Boukos, P. Dallas, M. Edelmannová, M. Reli, K. Koci, C. Trapalis, “Photocatalytic H<sub>2</sub> Evolution, CO<sub>2</sub> Reduction, and NO<sub>x</sub> Oxidation by Highly Exfoliated g-C<sub>3</sub>N<sub>4</sub>”, Catalysts 10 (2020) 1147. **(IF: 3.520)**
- **I. Papailias**, N. Todorova, T. Giannakopoulou, N. Ioannidis, P. Dallas, D. Dimotikali, C. Trapalis, “Novel torus shaped g-C<sub>3</sub>N<sub>4</sub> photocatalysts”, Appl. Catal. B Environ. 268 (2020) 118733. **(IF: 14.229)**
- **I. Papailias**, N. Todorova, T. Giannakopoulou, N. Ioannidis, N. Boukos, C. Athanasekou, D. Dimotikali, C. Trapalis, “Chemical vs thermal exfoliation of g-C<sub>3</sub>N<sub>4</sub> for NO<sub>x</sub> removal under visible light irradiation”, Appl. Catal. B Environ. 239 (2018) 16-26. **(IF: 11.698)**
- D. Dvoranová, M. Mazúr, **I. Papailias**, T. Giannakopoulou, C. Trapalis, V. Brezová, “EPR Investigations of g-C<sub>3</sub>N<sub>4</sub>/TiO<sub>2</sub> Nanocomposites”, Catalysts 8 (2018) 47-60. **(IF: 3.465)**
- **I. Papailias**, N. Todorova, T. Giannakopoulou, S. Karapati, N. Boukos, D. Dimotikali, C. Trapalis, “Enhanced NO<sub>2</sub> abatement by alkaline-earth modified g-C<sub>3</sub>N<sub>4</sub> nanocomposites for efficient air purification”, Appl. Surf. Sci. 430 (2018) 225-233. **(IF: 4.439)**
- S. Karapati, T. Giannakopoulou, N. Todorova, N. Boukos, **I. Papailias**, D. Dimotikali, C. Trapalis, “Novel ‘Pickering’ modified TiO<sub>2</sub> photocatalysts with high De-NO<sub>x</sub> efficiency”, Catal. Today 287 (2017) 45-51. **(IF: 4.667)**
- **I. Papailias**, N. Todorova, T. Giannakopoulou, J. Yu, D. Dimotikali, C. Trapalis, “Photocatalytic activity of modified g-C<sub>3</sub>N<sub>4</sub>/TiO<sub>2</sub> nanocomposites for NO<sub>x</sub> removal”, Catal. Today 280 (2017) 37-44. **(IF: 4.667)**

- T. Giannakopoulou, **I. Papailias**, N. Todorova, N. Boukos, Y. Liu, J. Yu, C. Trapalis, "Tailoring the energy band gap and edges' potentials of g-C<sub>3</sub>N<sub>4</sub>/TiO<sub>2</sub> composite photocatalysts for NO<sub>x</sub> removal", Chem. Eng. J. 310 (2017) 571-580. **(IF: 6.735)**
- **I. Papailias**, T. Giannakopoulou, N. Todorova, D. Demotikali, T. Vaimakis, C. Trapalis, "Effect of processing temperature on structure and photocatalytic properties of g-C<sub>3</sub>N<sub>4</sub>", Appl. Surf. Sci. 358 (2015) 278-286. **(IF: 3.150)**
- **I. Papailias**, M. Giannouri, A. Trapalis, N. Todorova, T. Giannakopoulou, N. Boukos, C. Lekakou, "Decoration of crumpled rGO sheets with Ag nanoparticles by spray pyrolysis", Appl. Surf. Sci. 358 (2015) 84-90. **(IF: 3.150)**

## CONFERENCES

- 6<sup>th</sup> European Conference on Environmental Applications of Advanced Oxidation Processes - **EAAOP 6** (26-30 June 2019, Portoroz, Slovenia):  
"Selective removal of organic and inorganic air pollutants by adjusting the g-C<sub>3</sub>N<sub>4</sub>/TiO<sub>2</sub> ratio", Poster presentation
- 12<sup>th</sup> Panhellenic Chemical Engineering Symposium - **12 PESXM** (29-31 May 2019, Athens, Greece):  
"Development of novel g-C<sub>3</sub>N<sub>4</sub>/TiO<sub>2</sub> heterostructures for photocatalytic oxidation of indoor air pollutants", Poster presentation
- 15<sup>th</sup> Panhellenic Symposium of Catalysis - **15 PSK** (18-20 October 2018, Ioannina, Greece):  
"g-C<sub>3</sub>N<sub>4</sub>/BiVO<sub>4</sub> composite materials for photocatalytic NO<sub>x</sub> oxidation", Poster presentation
- 11<sup>th</sup> Panhellenic Chemical Engineering Symposium - **11 PESXM** (25-27 May 2017, Thessaloniki, Greece):  
"Oxidation of NO air pollutant and effective improvement of air quality with modified g-C<sub>3</sub>N<sub>4</sub>", Poster presentation
- 9<sup>th</sup> European Meeting on Solar Chemistry and Photocatalysis: Environmental Applications - **SPEA 9** (13-17 June 2016, Strasbourg, France):  
"Ca modified g-C<sub>3</sub>N<sub>4</sub>/TiO<sub>2</sub> photocatalysts for efficient air purification", Poster presentation
- 2<sup>nd</sup> International Symposium on Energy and Environmental Photocatalytic Materials - **EPEM 2** (1-4 April 2016, Wuhan, China):  
"Functionalized TiO<sub>2</sub> nanoparticles with De-NO<sub>x</sub> properties", Poster presentation
- 4<sup>th</sup> European Conference on Environmental Applications of Advanced Oxidation Processes - **EAAOP 4** (21-24 October 2015, Athens, Greece):  
"Photocatalytic activity of g-C<sub>3</sub>N<sub>4</sub>/TiO<sub>2</sub> nanocomposites for NO<sub>x</sub> removal", Poster presentation
- Photocatalytic and Superhydrophilic Surfaces Workshop - **PSS 2015** (10-11 September 2015, Guimaraes, Portugal):  
"Photocatalytic properties of g-C<sub>3</sub>N<sub>4</sub> materials synthesized at different temperatures", Poster presentation
- 1<sup>st</sup> International Workshop on Graphene and C<sub>3</sub>N<sub>4</sub>-based Photocatalysts - **IWGCP** (5-8 June 2015, Wuhan, China):  
"Effect of processing temperature on structure and photocatalytic properties of g-C<sub>3</sub>N<sub>4</sub>", Poster presentation
- 10<sup>th</sup> Panhellenic Chemical Engineering Symposium - **10 PESXM** (4-6 June 2015, Patra, Greece):  
"Production of crumpled graphene oxide with spray pyrolysis technique", Poster presentation

## TECHNICAL SKILLS

- Equipment use: Gas Chromatograph, Mass Spectrometer, Scanning Electron Microscope, FT-IR Spectrometer, Gas Sorption Analyzer
- ISO standards: ISO 27447 (Antibacterial activity), ISO 22197-1 (Removal of NO<sub>x</sub>), ISO 22197-2 (Removal of acetaldehyde)

- Certified reviewer in scientific journals: Arabian Journal of Chemistry, Construction & Building Materials, Journal of Hazardous Materials, Applied Surface Science
- Economic and administrative management of scientific projects
- Driving license

#### FOREIGN LANGUAGES

- English - C2 (**Certificate of Proficiency in English**, University of Cambridge)

#### HONOURS AND AWARDS

- **“Thomaidion” award** for published paper, National Technical University of Athens: “Photocatalytic activity of modified g-C<sub>3</sub>N<sub>4</sub>/TiO<sub>2</sub> nanocomposites for NO<sub>x</sub> removal”, Catal. Today 280 (2017) 37-44.
- **“Virginia Manasaki” award** for PhD candidates in the field of waste management, environmental and energy issues, Association of Solid Waste Management of Crete - ESDAK.
- **Best poster award**: “Functionalized TiO<sub>2</sub> Nanoparticles with De-NO<sub>x</sub> Properties”, 2<sup>nd</sup> International Symposium on Energy and Environmental Photocatalytic Materials - EEPM 2 (1-4 April 2016, Wuhan, China).