

CURRICULUM VITAE

PERSONAL DETAILS

LAST NAME GKINI
FIRST NAME KONSTANTINA
E-MAIL k.gkini@inn.demokritos.gr

EDUCATION

12.2016-Today PhD in Perovskite Solar Cells, University of Patras Greece, Department of Physics

09.2013-11.2015 MSc in Energy, Heriot-Watt University United Kingdom, Faculty of Engineering/ School of Engineering and Physical Sciences, Grade: A (9.12)

09.2006-09.2012 BSc in Physics, University of Patras Greece, Department of Physics, Grade: 6.80

RESEARCH/WORK EXPERIENCE

12.2016-Today University of Patras Greece, Department of Physics/ NCSR “Demokritos” – INN (PhD Thesis)
My research activity focuses on the fabrication, characterization and optimization of 3rd generation solar cells. More specific:

- Study of perovskite materials for their use as absorbers or holes transport materials in perovskite solar cells (PSCs)
- Fabrication and electrochemical characterization of perovskite solar cells
- Interface engineering in PSCs using porphyrins and dyes.

During my research activity I have gained experience on:

- Electrochemical characterization and development of solar cells (Voltammetry / Impedance Spectroscopy / Electrodeposition)
- Ultraviolet/Visible spectroscopy (FTIR, UV/vis)
- Thermal evaporation
- Deposition methods (Spin Coating, Dip Coating, Doctor Blade, ALD)
- Operation and use of laboratory and mechanical equipment

07.2014-07.2015 Heriot-Watt University United Kingdom, School of Engineering and Physical Sciences/ NCSR “Demokritos” – INN (MSc’s Dissertation)

My research activity concerned the fabrication and characterization of 3rd generation solar cells. More specific:

- Implementation of perovskite materials as light absorbers in PSCs
- Surface modification of TiO₂ nanostructured layers
- Development of dye sensitized solar cells photosensitized, both solid state and gel electrolyte structures
- Electrochemical characterization of dye sensitized solar cells

- 09.2012-03.2013** University of Patras Greece, Department of Physics/ NCSR “Demokritos” – INN (Internship)
Principle activities:
- Manufacturing and optimization Titania Nanotubes (TNTs), through the electrochemical process of anodic oxidation of titanium.
 - Preparation of solutions of titanium tetrachloride (TiCl₄) for surface modification of nanostructured films of titanium dioxide (TiO₂).
 - Characterization by Scanning Electron Microscopy (SEM) of one-dimensional nanotubes TiO₂.
 - Construction and electrical characterization of photo-sensitized solar cells (dye-sensitized solar cells - DSC), bearing as active substrate (photo-electrode) TNTs.

PUBLICATIONS

1. K.E. Gkini, M. Antoniadou, N. Balis, A. Kaltzoglou, A.G. Kontos and P. Falaras, *Materials Today: Proceedings*, 19 (1), 2019, pg. 73-78. DOI: 10.1016/j.matpr.2019.07.660
2. K. Gkini, A.Verykios, N. Balis, A. Kaltzoglou, M. Papadakis, K.S. Adamis, K.K. Armadorou, A. Soultati, C. Drivas, S. Gardelis, I.D. Petsalakis, L.C. Palilis, A. Fakharuddin, M.I. Haider, X. Bao, S. Kennou, P. Argitis, L. Schmidt-Mende, A.G. Coutsolelos, P. Falaras, M. Vasilopoulou, , *ACS Appl. Mater. Interfaces* 2020, 12, 1, 1120–1131. DOI: 10.1021/acsami.9b17580
3. A.A. Zaky, R.A. El Sehiemy, Y.I. Rashwan, M.A. El Hossienid, K. Gkini, A. Kladas, P. Falaras, *ECS J. Solid State Sci. Technol.* 2019, 8, Q249. DOI: 10.1149/2.0271912jss
4. A.A. Zaky, N. Balis, K. Gkini, C. Athanasekou, A. Kaltzoglou, T. Stergiopoulos, P. Falaras, *Chemistry Select*, 2020, 5 (15), 4454-4462. DOI: 10.1002/slct.2020000771
5. K Gkini, N Balis, M Papadakis, A Verykios, MC Skoulikidou, C Drivas, S Kennou, M Golomb, A Walsh, A G Coutsolelos, M Vasilopoulou, P Falaras, *ACS Appl. Energy Mat.* 2020, 3 (8), 7353-7363. DOI: 10.1021/acsaem.0c00710
6. A. A. Zaky, E. Christopoulos, K. Gkini, M. K. Arfanis, L. Sygellou, A. Kaltzoglou, A. Stergiou, N. Tagmatarchis, N. Balis, P. Falaras, *Appl. Catalysis B: Environmental*, 2021, 284, 119714. DOI: 10.1016/j.apcatb.2020.119714
7. K. Gkini, I. Martinaiou, P. Falaras, Boosting efficiency and stability of perovskite solar cells using graphitic carbon nitride nanostructures, *Materials*, 2021, 14(7), 1679, DOI:10.3390/ma14071679
8. A. A. Zaky, A. Fathy, H. Rezk, K. Gkini, P. Falaras, & A. Abaza, *Sustainability (Switzerland)*, 2021, 13(23), 12969. DOI:10.3390/su132312969

CONFERENCE PRESENTATIONS

1. N. Vaenas, A. Charalambous, E. Pavlatou, K. Gkini, T. Stergiopoulos, A. G. Kontos, P. Falaras, «Electrochemical nanotube growth of Titan and their Application to Sensitized Solar Cells», 9^o National Scientific Congress of Chemical Engineering, 23-25/5/2013, NTUA, Athens, Greece. poster presentation, CD of proceedings, PE0129, 7 pages.
2. Konstantakou, M.; Gkini, K.; Vaenas, N.; Stergiopoulos, T.; Falaras, P., «Optimization of anodic titania nanotubes for dye solar cells using cobalt (II)/(III) electrolytes», 4rd International Conference from Nanoparticles & Nanomaterials to Nanodevices & Nanosystems and NanoTechnology, 4th IC4N-2013, June 16 – 20, 2013, Corfu, Greece, Book of Abstracts, p. 41.
3. K.E. Gkini, M.I. Antoniadou, N. Balis, A. Kaltzoglou, A.G. Kontos, P. Falaras, «Mixing cations and halide anions in perovskite solar cells», NANOTECHNOLOGY 2018 (NN18), 15th International Conference on Nanosciences & Nanotechnologies, 3-6 July 2018, Porto Palace Conference Centre & Hotel, Thessaloniki, Greece, poster presentation, Book of Abstracts, page 169.

4. **K. E. Gkini**, M. Antoniadou, N. Balis, A. G. Kontos and P. Falaras, «Mixed cation perovskite for planar and mesoscopic solar cells», Athens Conference on Advances in Chemistry (ACAC 2018), 30 October – 01 November 2018, UoA, Athens, Greece, oral presentation.
5. Konstantina Gkini, Nikolaos Balis, Apostolis Verykios, Maria Antoniadou, Athanasios G. Kontos, Athanasios G. Coutsolelos, Maria Vasilopoulou, Polycarpos Falaras, «Titania/Absorber Interface Engineering in Perovskite Solar Cells Using a Metallated Porphyrin», Spring Meeting of the European Materials Research Society (E-MRS 2019), 27 – 31 May 2019, Nice, France, poster presentation.
6. A.A Zaky., N. Balis, K. Gkini., A.G. Kontos, C. Athanasekou, M. Antoniadou, P. Falaras, Thermal Stability Enhancement of Perovskite Solar Cells via Dye Sensitization of the Titania Compact Layer, European Materials Research Society (E-MRS Spring Meeting 2019), 27-31 May 2019, Congress & Exhibition Centre Acropolis, Nice, France, poster presentation.
7. K. E. Gkini, N. Balis, A. Verykios, M. Antoniadou, A. G. Kontos, A. G. Coutsolelos, M. Vasilopoulou, P. Falaras, «Titania/Absorber Interface Modification using Porphyrin Complexes in Planar Perovskite Solar cells», 12o National Scientific Congress of Chemical Engineering, NTUA, 29-31 May 2019, Athens, Greece, poster presentation.
8. A. A. Zaky, N. Balis, K. Gkini, X. Athanasekou, G. Belesiotis, A. G. Kontos, P. Falaras, «Thermal Stability of Perovskite Solar Cells by Electron Transport Layer’s Sensitization with an Organic Dye», 12o National Scientific Congress of Chemical Engineering, NTUA, 29-31 May 2019, Athens, Greece.
9. L. Givalou, E Christopoulos, K. Gkini and P. Falaras, High Efficiency Perovskite Solar Cells Incorporating Semiconductor Quantum Dots, November 19-20, 2020, Online Conference, Poster Presentation.
10. **K. Gkini**, I. Martinaiou and P. Falaras, « Incorporation of graphitic carbon nitride (g-C₃N₄) within functional interfaces for highly efficient perovskite solar cells», International Conference on Perovskites for Energy Harvesting: from Fundamentals to Devices (PERENHAR), 19-20 November 2020, Online Conference, oral presentation.
11. **Martinaiou I**, Gkini K, Falaras P, Incorporation of graphitic carbon nitride as ETL for highly efficient perovskite solar cells, Athens Conference on Advances in Chemistry (ACAC 2020), 10 – 14 March 2021, UoA, Athens, Greece, flash presentation.

HONORS/AWARDS

- Master Degree with Distinction
- Scholarship by A. G. Leventis Foundation for the academic year 2019-2020.
- Scholarship by the Operational Programme “Human Resources Development, Education and Lifelong Learning 2014-2020” – Cycle B of Young Researchers’ Support.

LANGUAGES

- Greek (Native)
- English (Proficiency – University of Michigan)
- Spanish (Nivel Intermedio – Instituto de Cervantes)