**Verykios Apostolos, Ph.D. Candidate**

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**Education**

2022 **Ph.D. Candidate in Organic Electronics, University of Patras, Physics Department** Thesis title: *High Efficiency Hybrid Organic Light Emitting Diodes (OLEDs) with Interfacial Films of Composite Molecular Oxides of Metal and Metallic Nanoparticles*

****2016 **M.Sc. in Microsystems and Nanodevices, National Technical University of Athens**

Thesis title: *Polyoxometallic Compounds of Tungsten and Molybdenum as Charge transport Layers in Organic Light Emitting Diodes (OLEDs)*

****2014 **B.Sc. in Material Science, University of Patras.**

Thesis title: *Increase the Efficienacy of Organic Light Emitting Diodes (OLEDs)*

**Research Experience**

2016 – 2022 **PhD Candidate, NCSR Demokritos**

* Design, Fabrication and Characterization of Organic Solar Cells (OSCs) Organic Light Emitting Diodes (OLEDs), Perovskite Solar Cells (PSCs)
* In Depth Knowledge of Thin Film Characterization Techniques. Atomic Force Microscopy (AFM), Ultraviolet-Visible Spectroscopy (UV-Vis), Contact Angle Measurements, Profilometer, Photoluminescence Spectro- scopy (PL), Fourier-Transform Infrared Spectroscopy (FTIR), X-ray Pho- toelectron Spectroscopy (XPS), Ultraviolet Photoelectron Spectroscopy (UPS), X-ray Diffraction (XRD)
* Study and Implementation of Molecular Materials such as Polyoxometal- ates, Porphyrins , Metal Oxides and Plasmonic Metallic Nanoparticles as Device Interlayers
* Funding: The Reasearch Founded by State Scholarships Foundation (IKY)

2015 – 2016 **Postgraduate Student, NCSR Demokritos**

* Design, Fabrication and Characterization of Organic Light Emitting Di- odes (OLEDs) with the Employment of Polyoxometalates (POMs) as Device Interlayers
* Design, Fabrication and Characterization of Organic Photovoltaics (OPVs) with the Employment of Polyoxometalates (POMs) as Device In- terlayers
* Study of Chemical Modification with a Range of Spectroscopic Tech- niques, such as XPS, UPS, UV-Vis, FTIR and PL and Expertise in Working in a Chemistry Lab

2011 – 2014 **Undergraduate Student, University of Patras.**

* Experience on Working in a Cleanroom Environment
* Experience in DC Sputtering, Scanning Tunneling Microscopy (STM) Ima- ging, X-ray Diffraction (XRD) and Transmission Electron Microscopy (TEM) Data Analysis and Finite Difference Time Domain

**Research Publications**

**International Peer-Reviewed Journal Articles**

**A. Verykios**, G. Pistolis, L. Bizas, C. Tselios, D. Tsikritzis, S. Kennou, C. Chochos, D. Mouzakis, P. Skandamis, A. Yusoff, L. Palilis, P. Argitis, M. Vasilopoulou, A. Soultati, PEDOT:PSS:sulfonium salt composite hole injection layers for efficient organic light emitting diodes, Org. Electron. 93 (2021) 106155. <https://doi.org/10.1016/j.orgel.2021.106155>.

N. Balis, **A. Verykios**, A. Soultati, V. Constantoudis, M. Papadakis, F. Kournoutas, C. Drivas,

C. Skoulikidou, S. Gardelis, M. Fakis, S. Kennou, A. Kontos, T. Coutsolelos, P. Falaras, M. Vasilopoulou, Triazine-Substituted Zinc Porphyrin as an Electron Transport Interfacial Material for Efficiency Enhancement and Degradation Retardation in Planar Perovskite Solar Cells, ACS Appl. Energy Mater. 1 (2018). <https://doi.org/10.1021/acsaem.8b00447>.

 M. Tountas, **A. Verykios**, E. Polydorou, A. Kaltzoglou, A. Soultati, N. Balis, P. Angaridis, M. Papadakis, V. Nikolaou, F. Auras, L. Palilis, D. Tsikritzis, E.K. Evangelou, S. Gardelis, M. Koutsoureli, G. Papaioannou, I. Petsalakis, S. Kennou, D. Davazoglou, M. Vasilopoulou, Engineering of Porphyrin Molecules for Use as Effective Cathode Interfacial Modifiers in Organic Solar Cells of Enhanced Efficiency and Stability, ACS Appl. Mater. Interfaces. 10 (2018). <https://doi.org/10.1021/acsami.8b03061>.

M. Tountas, Y. Torlak, **A. Verykios**, A. Soultati, A. Kaltzoglou, T. Papadopoulos, F. Auras, K. Seintis, M. Fakis, L. Palilis, D. Tsikritzis, S. Kennou, A. Fakharuddin, L. Schmidt-Mende, S. Gardelis, M. Kus, P. Falaras, D. Davazoglou, P. Argitis, M. Vasilopoulou, A Silanol-Functionalized Polyoxometalate with Excellent Electron Transfer Mediating Behavior to ZnO and TiO2 Cathode Interlayers for Highly Efficient and Extremely Stable Polymer Solar Cells, J. Mater. Chem. C. 6 (2017). <https://doi.org/10.1039/C7TC04960A>.

M. Tountas, Y. Torlak, E. Polydorou, A. Soultati, **A. Verykios**, A. Kaltzoglou, T. Papadopoulos, F. Auras, K. Seintis, M. Fakis, L. Palilis, D. Tsikritzis, S. Kennou, M. Koutsoureli, G. Papaioannou, M. Ersoz, M. Kus, P. Falaras, D. Davazoglou, M. Vasilopoulou, Low-Work Function Lacunary Polyoxometalates Electron Transport Interlayers for Inverted Polymer Solar Cells of Improved Efficiency and Stability, ACS Appl. Mater. Interfaces. 9 (2017). <https://doi.org/10.1021/acsami.7b04600>.

K. Gkini, N. Balis, M. Papadakis, **A. Verykios**, Ma.-C. Scoulicidou, C. Drivas, S. Kennou, M. Golomb, A. Walsh, T. Coutsolelos, M. Vasilopoulou, P. Falaras, Manganese Porphyrin Interface Engineering in Perovskite Solar Cells, ACS Appl. Energy Mater. XXXX (2020). <https://doi.org/10.1021/acsaem.0c00710>.

 L. Palilis, M. Vasilopoulou, **A. Verykios**, A. Soultati, E. Polydorou, P. Argitis, D. Davazoglou,

A. Yusoff, M. Nazeeruddin, Inorganic and Hybrid Interfacial Materials for Organic and Perovskite Solar Cells, Adv. Energy Mater. 10 (2020) 2000910. <https://doi.org/10.1002/aenm.202000910>.

 A. Soultati**, A. Verykios**, S. Panagiotakis, K.-K. Armadorou, M. Haider, A. Kaltzoglou, C. Drivas, A. Fakharuddin, X. Bao, C. Yang, A. Yusoff, E.K. Evangelou, I. Petsalakis, S. Kennou, P. Falaras, K. Yannakopoulou, G. Pistolis, P. Argitis, M. Vasilopoulou, Suppressing the Photocatalytic Activity of Zinc Oxide Electron-Transport Layer in Nonfullerene Organic Solar Cells with a Pyrene- Bodipy Interlayer, ACS Appl. Mater. Interfaces. 12 (2020). <https://doi.org/10.1021/acsami.0c03147>.

 M. Vasilopoulou, A. Yusoff, N. Kuganathan, X. Bao, **A. Verykios**, E. Polydorou, K.-K. Armadorou, A. Soultati, G. Papadimitropoulos, M. Haider, A. Fakharuddin, L. Palilis, S. Kennou,

A. Chroneos, P. Argitis, D. Davazoglou, A carbon-doped tantalum dioxyfluoride as a superior electron transport material for high performance organic optoelectronics, Nano Energy. 70 (2020) 104508. [https://doi.org/10.1016/j.nanoen.2020.104508.](https://doi.org/10.1016/j.nanoen.2020.104508)

 A. Soultati, **A. Verykios**, K.-K. Armadorou, M. Tountas, V. Vidali, K. Ladomenou, L. Palilis,

D. Davazoglou, T. Coutsolelos, P. Argitis, M. Vasilopoulou, Interfacial Engineering for Organic and Perovskite Solar Cells using Molecular Materials, J. Phys. D. Appl. Phys. 53 (2020). <https://doi.org/10.1088/1361-6463/ab7f73>.

 K. Gkini, **A. Verykios**, N. Balis, A. Kaltzoglou, M. Papadakis, K. Adamis, K.-K. Armadorou, A. Soultati, C. Drivas, S. Gardelis, I. Petsalakis, L. Palilis, A. Fakharuddin, M. Haider, X. Bao, S. Kennou, P. Argitis, L. Schmidt-Mende, T. Coutsolelos, M. Vasilopoulou, Enhanced Organic and Perovskite Solar Cell Performance through Modification of the Electron Selective Contact with a Bodipy-Porphyrin Dyad, ACS Appl. Mater. Interfaces. 12 (2019). <https://doi.org/10.1021/acsami.9b17580>.

 A. Soultati, **A. Verykios**, T. Speliotis, M. Fakis, I. Sakellis, H. Jaouani, D. Davazoglou, P. Argitis, M. Vasilopoulou, Organic solar cells of enhanced efficiency and stability using zinc oxide:zinc tungstate nanocomposite as electron extraction layer, Org. Electron. 71 (2019). <https://doi.org/10.1016/j.orgel.2019.05.023>.

 **A. Verykios**, M. Papadakis, A. Soultati, C. Skoulikidou, G. Papaioannou, S. Gardelis, I. Petsalakis, G. Theodorakopoulos, V. Petropoulos, L. Palilis, M. Fakis, N. Vainos, D. Alexandropoulos, D. Davazoglou, G. Pistolis, P. Argitis, T. Coutsolelos, M. Vasilopoulou, Functionalized Zinc Porphyrins with Various Peripheral Groups for Interfacial Electron Injection Barrier Control in Organic Light Emitting Diodes, ACS Omega. 3 (2018) 10008–10018. <https://doi.org/10.1021/acsomega.8b01503>.

**Research Interests**

Improvement of the interfaces between the active component and the electrode materials in Organic Solar Cells (OSCs) and Organic Light Emitting Diodes (OLEDs), by modifying those interfaces with molecular materials like Polyoxometalates and Porphyrin compounds.

Achieving high device efficiency and environmental stability and developing an under- standing of the main physical processes that influence those two factors, which represents a major challenge in the field of green photovoltaic technologies, in general.

**Languages**

**Greek** Native

**English** Fluent

**French** Basic