

KYRIACOS GEORGIU, PhD

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Kyriacos is a hardworking, motivated and career-oriented researcher with expertise in Experimental Physics and Molecular Engineering, and an impressive research track record. He holds a master degree in Electrical and Electronic Engineering specializing in Renewable Energy and Clean Technology Systems and their efficient distribution and integration (smart grids). He has also completed a PhD in Experimental Physics and worked as a postdoctoral fellow on a variety of EU and UK funded projects with many academic and industrial collaborators. He has more than 8 years of research experience and was recently an Onisilos Research Fellow at the University of Cyprus. Currently, he is a Postdoctoral Scholar in the Pritzker School of Molecular Engineering at University of Chicago and Center for Nanoscale Materials at Argonne National Laboratory in the US, while at the same time holding an Honorary Research Fellowship from the University of Sheffield and a Visiting Researcher position at University of Cyprus. His main research interests focus on understanding fundamental concepts in organic semiconductor physics with an aim to develop efficient optoelectronic devices for applications in photonics, light-harvesting, communications, information processing etc. He is also interested in nano-structures for photon-assisted modification of chemical and physical properties of molecular materials as well as non-invasive bio-optical engineering.



Professional Experience

Apr 2022 – date **University of Cyprus**



Department of Physics

Visiting Researcher in Material Physics, Photonics, Ultrafast Spectroscopy and Organic/Hybrid Optoelectronics.

Mar 2022 – date **Argonne National Laboratory**



Division of Nanoscience Technology – Center for Nanoscale Materials

Postdoctoral Scholar in Molecular Engineering, Optical Microcavities, Material Physics, Infrared Photonics.

Mar 2022 – date **University of Chicago**



Pritzker School of Molecular Engineering

Postdoctoral Scholar in Molecular Engineering, Optical Microcavities, Material Physics, Infrared Photonics.

Sept 2020 – Mar 2022 **University of Cyprus**



Department of Physics

Onisilos Research Fellow in Material Physics, Photonics, Ultrafast Spectroscopy and Organic/Hybrid Optoelectronics.

Sept 2021 – Jan 2022 **University of Cyprus**

Department of Physics

Special Scientist / Lecturer of the undergraduate module ‘PHY322 - Advanced Physics Laboratory II – Atomic and Nuclear Physics’.



Oct 2020 – date **The University of Sheffield**

Department of Physics and Astronomy

Honorary Research Fellow in Material Physics, Photonics, Ultrafast Spectroscopy and Organic/Hybrid Optoelectronics.



Oct 2018 – Oct 2020 **The University of Sheffield**

Department of Physics and Astronomy

Post-Doctoral Research Associate in Material Physics, Photonics and Organic/Hybrid Optoelectronics.



Education

Oct 2014 – Oct 2018 **The University of Sheffield**

Department of Physics and Astronomy

PhD in Physics

Research interests: Material Physics, Photonics, Organic/Hybrid Optoelectronics, Solid State Physics

Thesis Title: Exciton-Polaritons in BODIPY-filled Microcavities

PhD Awarded: 15/01/2019



Sept 2012 – Sept 2013 **The University of Manchester**

School of Electrical and Electronic Engineering

MSc Renewable Energy and Clean Technology

Class: Distinction

- MSc thesis: ‘Effects of temperature and series resistance variation on the performance of silicon solar cells’



Sept 2007 – Jul 2012 **The University of Patras**

Department of Physics

BSc in Physics

Grade: 66,9% (Class: Very Good)

- Specialization: Energy Materials and Environmental Physics



Skills and Expertise

Processing, Design, Fabrication and Characterization of Materials and Devices

- Ability to design, optimize and fabricate organic and hybrid optical devices in a clean-room environment.
- Strong skills in optical characterization of materials, organic microcavities and other photonic structures.

Project Management

- Ability to work on multiple projects simultaneously and prioritizing competing demands. Experience with writing and implementing EU and UK funded Research projects in the academic sector.

Teamwork and Communication

- Team management - Supervising new PhD and postgraduate students undertaking projects within the Electronic and Photonic Molecular Materials group and the Laboratory of Ultrafast Science.
 - Hold collaborations with people of different areas and level of expertise in University of Southampton and University of St Andrews in the UK, Politecnico di Milano in Italy, Cornell University in the US, Nanjing University in China and Skolkovo Institute of Science and Technology (Skoltech) in Moscow, Russia.
 - Developed excellent presentation and communication skills by working as a physics teacher and demonstrator at the Science and Technology Museum at the University of Patras, teaching undergraduate physics modules at the University of Sheffield and the University of Cyprus, engaging and organising outreach activities and delivering oral and poster presentations at departmental and international conferences during my PhD and post-doctoral positions.
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Publications

2022

- Pandya R. *et al.* Tuning the coherent propagation of organic exciton-polaritons through dark state delocalization. *Adv. Sci.* (2022).
- McGhee K. E. *et al.* Polariton condensation in a microcavity using a highly-stable molecular dye. *J. Mater. Chem. C* (2022).

2021

- McGhee K. E. *et al.* Polariton condensation in an organic microcavity utilising a hybrid metal-DBR mirror. *Sci. Rep.*, 11, 20879 (2021).
- Renken S. *et al.* Untargeted Effects in Organic Exciton-Polariton Transient Spectroscopy: A Cautionary Tale. *J. Chem. Phys.*, 155, 154701 (2021).
- **Georgiou K.** *et al.* Ultralong-range polariton-assisted energy transfer in organic microcavities. *Angew. Chem. Int. Ed.*, 60 (30), 16661-16667 (2021).
- **Georgiou K.** *et al.* Observation of Photon-Mode Decoupling in a Strongly Coupled Multimode Microcavity. *J. Chem. Phys.*, 154 (12), 124309 (2021).

2020

- **Georgiou K.** *et al.* Strong Coupling of Organic Dyes Located at the Surface of a Dielectric Slab Microcavity. *J. Phys. Chem. Lett.*, 11, 9893-9900 (2020).
- Alanazi T. I. *et al.* Potassium iodide reduces the stability of triple-cation perovskite solar cells. *RSC Advances*, 10 (66), 40341-40350 (2020).
- Jayaprakash R., Whittaker C. E., **Georgiou K.** *et al.* A two-dimensional organic-exciton polariton lattice fabricated using laser patterning. *ACS Photonics*, 7 (8), 2273–2281 (2020).

- Putintsev A. *et al.* Nano-second exciton-polariton lasing in organic microcavities. *Appl. Phys. Lett.*, 117 (12), 123302 (2020).
- Gillard D. *et al.* Strong Exciton-Photon Coupling in Large Area MoSe₂ and WSe₂ Heterostructures Fabricated from Two-Dimensional Materials Grown by Chemical Vapor Deposition. *2D Materials* (2020).
- Yagafarov T. *et al.* Mechanisms blueshifts in organic polariton condensates. *Commun. Phys.*, 3 (1), 1-10 (2020).

2019

- Al-Jashaam F. L. *et al.* The optical structure of micropillar microcavities containing a fluorescent conjugated polymer. *Adv. Quantum Technol.*, 7 (17), 1900163 (2019).
- Polak D. *et al.* Manipulating matter with strong coupling: harvesting triplet excitons in organic exciton microcavities. *Chem. Sci.*, 11, 343-354 (2019).
- Jayaprakash R., **Georgiou K.** *et al.* A hybrid organic-inorganic polariton LED. *Light Sci. Appl.*, 8(81) (2019).
- Sannikov D. *et al.* Room-temperature broadband polariton-lasing from a dye-filled microcavity. *Adv. Opt. Mater.*, 7(17) (2019).

2018

- **Georgiou K.** *et al.* Generation of anti-Stokes fluorescence in a strongly coupled organic semiconductor microcavity. *ACS Photonics*, 5(11), 4343-4351 (2018).
- **Georgiou K.** *et al.* Control over energy transfer between fluorescent BODIPY dyes in a strongly-coupled microcavity. *ACS Photonics*, 5(1), 258-266 (2018).

2017

- Musser, A. J., Rajendran, S. K., **Georgiou, K.** *et al.* Intermolecular states in organic dye dispersions: excimers vs. aggregates. *J. Mater. Chem. C*, 5(33), 8380–8389 (2017).
- **Georgiou K.** and Cookson T. *et al.* A Yellow Polariton Condensate in a Dye Filled Microcavity. *Adv. Opt. Mater.*, 5(18), 1700203 (2017).

2016

- Grant, R. T. *et al.* Efficient Radiative Pumping of Polaritons in a Strongly Coupled Microcavity by a Fluorescent Molecular Dye. *Adv. Opt. Mater.*, 4(10), 1615 (2016).

Publications under preparation

- Georgiou K. *et al.* Strong exciton-photon coupling in free-standing organic membranes. (Submitted)
 - Athanasiou M. *et al.* Flexible, free standing polymer membranes sensitized by CsPbX₃ nanocrystal gain media for low threshold, multi-color light amplification. (Submitted)
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Regular Peer-Review Services to Scientific Journals

- ACS Photonics
 - Scientific Reports
 - Advanced Optical Materials
 - Chemical Physics Letters
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Editorial Services in Scientific Journals

- Nanomaterials - Guest Editor for the special issue ‘*Novel Advances in Optical Nanocavities*’, (2022).
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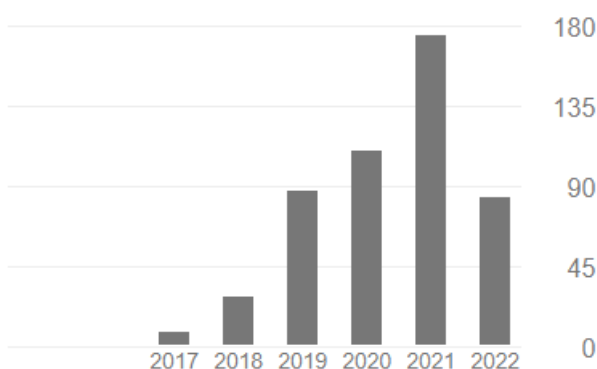
Conferences and Academic Visits

- Visiting researcher for Prof. Giulio Cerullo at the Physics Department, Politecnico di Milano to initiate a new collaboration and perform 2D Electronic spectroscopy experiments at the ultrafast laboratory, Milan, Italy, July 2021.  **POLITECNICO**
MILANO 1863
- ‘Strong coupling in organic-semiconductor slab microcavities’. SCOM 2021, Gothenburg, Sweden, April 2021. (held online due to Covid-19)
- ‘Strong coupling in organic-semiconductor slab waveguides’. PLMCN 2020, Clermont-Ferrand, France, October 2020. (held online due to Covid-19)
- ‘Bose-Einstein Condensation of Polaritons in BODIPY-filled microcavities’. UK Semiconductors, Sheffield, UK, July 2019.
- Visiting researcher for Prof. Pavlos Lagoudakis at University of Southampton to perform experiments at the hybrid photonics laboratory, Southampton, UK, January 2018.  **UNIVERSITY OF**
Southampton
- International School on Polaritonics and Photovoltaics, Sicily, Italy, August 2017.
- ‘Anti-Stokes emission in a strongly-coupled organic semiconductor microcavity.’ UK Semiconductors, Sheffield, UK, July 2017.
- Visiting researcher for Prof. Pavlos Lagoudakis at University of Southampton to perform experiments at the hybrid photonics laboratory, Southampton, UK, February 2017.  **UNIVERSITY OF**
Southampton
- Invited by Prof. Alexey V. Kavokin: ‘Laser cooling of organic hybrid microcavities.’ Science of the future, Kazan, Russia, September 2016.
- ‘Laser cooling of organic hybrid microcavities.’ EOSAM, Berlin, Germany, September 2016.
- ‘Hybridization of Frenkel-excitons through strong coupling.’ Research away day, Sheffield, UK, July 2016.
- ‘Strongly-coupled microcavities containing different fluorescent molecular BODIPY-core structures.’ ICSC8, Edinburgh, UK, April 2016.
- Workshop on Condensates of Light, Buckinghamshire, UK, January 2016.
- Visiting researcher for Prof. Pavlos Lagoudakis at University of Southampton to initiate a new collaboration and perform experiments at the hybrid photonics laboratory, Southampton, UK, July 2015.  **UNIVERSITY OF**
Southampton
- Visiting researcher for CNR Researcher Tersilla Virgili at Politecnico di Milano to initiate a new collaboration and perform experiments at the ultrafast laboratory, Milan, Italy, March, May and June 2015.  **POLITECNICO**
MILANO 1863
- 2nd Russian-British workshop for young scientists: Advanced Polaritonics and Photonics, Suzdal, Russia, March 2015.

Research Impact ([Google Scholar](#))

Cited by

	All	Since 2017
Citations	493	492
h-index	10	10
i10-index	11	11



Research Grants, Scholarships and Awards

- Royal Society International Exchanges – Exchange Researcher Grant (University of Exeter – University of Cyprus) - Grant No. ‘IES\R3\213193’ (2022-date).
- Laserlab Europe Collaboration - Visiting Researcher Grant (Politecnico di Milano) – Grant No. ‘CUSBO002805’ (2021-2022).
- Honorary Research Fellow – University of Sheffield (2020-2022).
- Onisilos Research Fellowship – University of Cyprus (2020-2022).
- PhD Scholarship: EPSRC Doctoral Training Grant (2014-2018).
- Won a competitive research grant (£1000) by the University of Sheffield to use in any way to develop my doctoral skills under the scheme Postgraduate Researcher Experience Programme (PREP), May 2017.
- First prize award winner for the presentation ‘Hybridization of Frenkel-excitons through strong coupling.’ Research Away Day, Sheffield, UK, July 2016.
- Invited by the Rossotrudnichestvo to participate to the Science of the Future – New Generation Program that took place in Kazan, Russia. The aim of the program was to bring together the most promising young scientist from around the world to encourage collaborations, September 2016.

THE
ROYAL
SOCIETY



ONISILOS

EPSRC



Teaching/Supervision Experience

- Lecturer of the module “Phy 322 – Advanced Physics Laboratory II (Atomic and Nuclear Physics)” – Department of Physics, University of Cyprus 2021– 2022.
 - Thesis advisor of students implementing their final undergraduate project, University of Cyprus 2021-2022.
 - Coordinator and Teaching Assistant for the “1st and 2nd Year Labs” – Department of Physics and Astronomy, University of Sheffield, 2019 – 2020.
 - Lecturer of the 3rd year module “Employability in Physics” – Department of Physics and Astronomy, University of Sheffield, 2019 – 2020.
 - Supervise PhD and Master students, 2018 – date.
 - Lab tutorials on Material Physics and Photonics – Department of Physics and Astronomy, University of Sheffield, 2014 – 2019.
 - Training course on ‘Small group teaching: Lab demonstration’, 2016 – 2017.
 - Training course on ‘Large group teaching: Lecturing’, 2016 – 2017.
 - Training course on ‘Large group teaching: Problem solving’, 2016 – 2017.
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Science Communication and Outreach Activities

- Exhibition: ‘Laser Physics and VCSEL Cake’, Discovery Night - University of Sheffield, March 2019, Sheffield, UK – Exhibition Organizer and Demonstrator.
 - Exhibition: ‘Quantum Light’, Cheltenham Science Festival, June 2017, Cheltenham, UK – Demonstrator.
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