

## Georgios E. Arnaoutakis MSc, PhD, AFHEA

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My research interests lie at the intersections of solar energy conversion and optics, photonics and photovoltaics. Supported by a strong background in the simulation and characterisation of solar conversion devices and systems, I enjoy developing new and existing methods for solar energy. Highlighted publications include:

[ORCID](#)

[SCOPUS](#)

[Google Scholar](#)

[Web of Science](#)

- [Ultra-broadband near-infrared upconversion for solar energy harvesting](#). *Solar Energy Materials and Solar Cells*, **269** 112783 (2024)
- [Dynamic Modeling of Combined Concentrating Solar Tower and Parabolic Trough for increased day-to-day performance](#), *Applied Energy* **323**, 119450 (2022)
- [Combined Wind-Pumped Hydro Storage Plant with a CSP Plant for Insular Systems: A Case Study for Rhodes](#), *Energies* **15** (18), 6822 (2022)
- [CombiCSP: A python routine for dynamic modeling of concentrating solar power plants](#), *Software Impacts*, **13**, 100367 (2022)

### RESEARCH EXPERIENCE

- '24 - **A. Professor · Hellenic Mediterranean University, GR [Mechanical Eng. Dept.](#)**  
Research & Teaching in solar energy conversion & storage technologies
- '20 - '22 **Research Fellow · HMU, Crete, GR [Mechanical Eng. Dept.](#)**  
Research in solar energy conversion & storage technologies
- '19 **Researcher · Hellenic Mediterranean University, Crete, GR [Nanomaterials for Emerging Devices group](#)**  
Research in photovoltaic devices and systems, project Graphene Core 2
- '17 - '19 **Research Fellow · Ben-Gurion University of the Negev, ISR [Ben-Gurion National Solar Energy Center](#)**  
Research in photovoltaic devices at ultra-high solar concentrations  
Established the following experimental research facilities:
  - Sunlight confocal photoluminescence spectroscopy setup
  - Optoelectronic characterisation setup of upconversion solar cells and concentrators
  - Confocal PL spectroscopy setup for stability assessment of perovskite films and cells
- '17 **Visiting Research Scientist · Karlsruhe Institute of Technology, GER [Institute of Microstructure Technology](#)**  
Short Term Scientific Mission - Research on upconversion photovoltaic devices
- '16 - '17 **Applications & Development Scientist · [Edinburgh Instruments](#), Livingston, UK**
  - Established and coordinated the applications laboratory whilst setting the standards for experiments and their report in technical papers and application notes
  - Developing and testing software and hardware of new instruments and equipment, designed in-house or out-sourced
  - Performing photoluminescence experiments in-house, on-site or via teleconference
- '15 - '16 **Applications Scientist · [Edinburgh Instruments](#), Livingston, UK**
  - Devising & performing experiments for existing and new applications of photoluminescence spectroscopy
  - Technical training, demonstration and support to customers, distributors, engineers and researchers on instruments, applications and use of scientific equipment
  - Performing customer fluorescence and laser measurements and experiments
- '11 - '15 **Ph.D. Researcher · Heriot-Watt University, Edinburgh, UK [School of Engineering & Physical Sciences \(EPS\)](#)**  
Research in optics and photoluminescence for photovoltaic devices:
  - Spectroscopy of organic and rare earth complexes
  - Optical characterisation of optoelectronic devices – solar cells, optical fibres
  - 3D design and simulation of optical devices and systems *via* ray-tracing
  - Setups for NIR characterisation PL, EQE, I-V of upconversion solar cells/fibres
  - Planning and coordination of a laser laboratory for optical characterisation, including multiple sources, spectrometers and detectors
- Editor** Advanced Concentrating Solar Energy for [Frontiers for Energy Research](#) and [Energies](#)
- Reviewer** For Journals: NatureSci.Dat. Ap.En. Sol.Mat. S.E.J S.E.J.A. A.T.E. Sus.En.Tech.&Ass. App.Opt. Opt.Exp. Opt.Mat.Exp. Opt.Lett. Phot.Res.  
For Grants: [OSA Special Program Grant](#), [Siegmán International School on Lasers](#)
- Member** International Solar Energy Society (**ISES**) · Optical Society America (**OSA**) · Higher Education Academy (**HEA**) · European Physical Society (**EPS**)

## EDUCATION

- '11 – '15 **Heriot-Watt University, Edinburgh, UK**  
[Ph.D. in Energy Engineering](#)  
Thesis: *Novel up-conversion concentrating photovoltaic concepts*  
Advisor: Prof. Tapas Mallick, Prof. Bryce Richards
- '09 – '10 **Heriot-Watt University, Edinburgh, UK**  
[M.Sc. in Renewable Energy Engineering](#) with distinction  
Dissertation: *Photo-stability of lanthanides for novel photovoltaic devices*  
Advisor: Prof. Bryce Richards
- '01 – '07 **Technological Educational Institute of Athens, GR**  
[B.Eng. \(Honours\) in Energy Technology](#)  
Dissertation: *Fire protection of laboratories in educational institutions*  
Advisor: Prof. Dimitrios Koubogiannis

## TEACHING & OUTREACH EXPERIENCE

- '23 - '24 **Lecturer · Hellenic Mediterranean University, GR** [Mechanical Eng. Dept.](#)  
MECH163 Fluid Mechanics II undergraduate course, MSc external supervision
- '22 **Mentor · International Solar Energy Society**  
Supervising undergraduate students in Renewable Energy projects
- '20 – '24 **Mentor · Global Talent Mentoring**  
Supervising students in preparation for the university
- '17 – '18 **PD, PhD & M.Sc. Supervision · Ben-Gurion University of the Negev, ISR**  
[Dept. of Solar Energy & Environmental Physics](#)  
▪ N.Samoylova ▪ U.Gupta ▪ A.M.Ambrose ▪ G.Moses ▪ R.Guo in Temperature dependent characterisation of perovskite films & multi-junction cells under high solar concentration
- '11 – '15 **M.Sc. Supervision · Heriot-Watt University, Edinburgh, UK**  
[Scottish Institute for Solar Energy Research \(SISER\)](#)  
▪ M. De Moroque-Slucki ▪ E. Acosta ▪ A.Phinikarides ▪ N.Skandalos ▪ M.Arnaoutakis ▪ P.Mangelis in Optical Design, Fabrication and Characterisation of 160× silicon, 500× III-V solar cell device, 50× spectrum splitting photovoltaic cavity, luminescent solar concentrators, bifacial silicon solar cells, PV/Wind Hybrid power plants
- '11 – '15 **Teaching assistant · Heriot-Watt University, Edinburgh, UK**  
[School of Engineering and Physical Sciences](#)  
Teaching and assessing B.Sc. and M.Sc. students in the following courses:  
▪ B28LT2·Physics Experimental Lab & Communication skills  
▪ B27TA·Physics Investigative Techniques  
▪ B37VB·Praxis Programming  
▪ B51ET·Foundations of Energy  
▪ B51GE·Renewable Energy Technologies  
▪ B51GK·Demand Management & Energy Storage  
▪ B57DA·Design & Manufacture
- '12 – '13 Coordinating STEM experience courses for insight into university for 16-17yr old students within the [Engineering Development Trust \(EDT\) Head-start](#)

## AWARDS, GRANTS & POINTS OF ESTEEM

- Jun22 [Optica](#) (formerly Optical Society of America) *Senior Member* Designation
- Jan21 Hellenic Mediterranean University Research *Fellowship* for 2 years **€32.625,73**
- Nov19 Project awarded in «Graphene Flagship Core Project 2 - GrapheneCore2 **€5.000**
- Nov19 634 out of 1109 in round 2 of the call for Postdoctoral Researchers from [SSF](#) scoring 80%
- May19 European Physical Society travel *Grant* **€350**, Ben-Gurion Central *Fund* for Advanced Study **\$1000**, BCSC *Grant* **\$500** for participation to CLEO/Europe-EQEC 2019
- Nov17 European Cooperation for Science & Technology (COST) & the European Up-conversion Network ([UCNP](#)), CM1403, *Grant* for Short Term Scientific Mission **€750**
- Apr17 Jacob Blaustein Center for Scientific Cooperation *Postdoctoral Fellowship* for 2 years **185.112 NIS**
- Mar14 EPSRC SuperGen SuperSolar International Conference *Fund* to attend the International Workshop on *Photoluminescence in Rare Earths (PRE'14): Photonic materials and devices*
- Feb14 RCUK/EPSRC *funding* for open access publication **€4100**
- Jul14 The Higher Education Academy *Associate Fellowship* (PR069908), complying with the UK Professional Standards Framework (UKPSF)
- May12 Materials Research Society and Ettore Majorana Foundation & Centre for Scientific Culture *Sponsorship* for the *International School on Materials for Renewable Energy* **€500**
- Feb11 Engineering & Physical Sciences Research Council (EPSRC) *Scholarship* for full time post-graduate research including tuition fees and subsistence for 42 months **£52.800**

## TRAINING & CONTINUOUS DEVELOPMENT

- '23 - '24 Mountain Steward & Mentor
- Jun20 Self-taught Python tutorials in [realpython.com](http://realpython.com)
- Jan18 [Career Calibrator](#), Optical Society of America
- Jun15 [Professional Development Workshops](#), Institute of Physics
- Jun12 [Research Futures Workshops](#), Heriot-Watt University
- Jan12 [Learning Enhancement And Development Skills \(LEADS\)](#), Heriot-Watt University  
Teaching & Learning Difficulties · Assessment · Active learning · Micro-teaching
- May99 [Grundstufe Zertifikat \(B1\) in German](#) (HER-G312010), PALSO, Greece
- Jun98 [First Certificate in English \(FCE\)](#) (986GR0640244), University of Cambridge, UK

## INTERNATIONAL CONFERENCES & RESEARCH DISSEMINATION

- Webinar Officer of the Technical Group *Optics for Energy* of Optica (formerly known as Optical Society of America) <https://www.optica.org/opticsforenergytg>
- Invited speaker at *SHIFT 2017 - Spectral sHapIng For energy applicaTions*, Spain, *Photonics Day 2016* at Ecole Polytechnique Fédérale de Lausanne, *Photovoltaics session in International Symposium on Energy Challenges and Mechanics 2014, 2016*
- Oral presentations in international conferences and symposia organised by the *Optical Society of America (OSA)* and the *International Workshop on Photoluminescence in Rare Earths (PRE)*.
- Poster presentations in international conferences and symposia organised by the *International Society of Optics and Photonics (SPIE)* and the *Institute of Physics (IoP)*
- Live demonstration of PL experiments at [Pardubice University, CZ](#), [Masaryk University Brno, CZ](#), [Academy of Sciences Prague, CZ](#), [Université de Lyon, FR](#), [Université Toulouse, FR](#), [Linxens, FR](#), [ETH Zurich, CH](#), [SICPA Lausanne, CH](#), [Universität Fribourg/Bern, CH](#), [EPFL, CH](#)

## INDUSTRIAL EXPERIENCE

- '08 – '09 **Technical Consultant · M. Papadakis Ltd, Agios Nikolaos, Crete, Greece**
  - Consultancy and due diligence on solar thermal, fire protection, air-conditioning, heating and hydraulic systems for residential and industrial buildings
  - Technical reports with supporting 2D designs on heat insulation, air-conditioning, electrics, environmental impacts, water supply/sanitation, fire protection
- '07 – '08 **Mechanical Engineer · NAMFI Operations Branch, Chania, Crete, Greece**
  - Engineering and administrative duties, within the mandatory military service
- '05 – '07 **Mechanical Engineer · M. Papadakis Ltd, Agios Nikolaos, Crete, Greece**
  - Administrative duties on presentations and financial appraisals
  - Assembling of mechanical, electrical and pumping systems
  - Integration of over 2,000 technical equipment items and accessories into retailing software for invoicing and client management

## TRANSFERABLE SKILLS

Characterisation	Steady-state and time-resolved PL and EL confocal spectroscopy, spectrophotometry, solar cells and concentrating non-imaging optics
Fabrication	Solution-processed thin-film deposition <i>via</i> spin-coating, evaporation, plasma sputtering, PMMA cell casting
Modelling & Programming	Python, Matlab, Labview, Ray-tracing, Solidworks, AutoCAD
Analysis-editing	EnergyPlus, HTRI, 4M Adapt-FCalc
Other	ImageJ, Origin, Zotero, Endnote, Microsoft Office Suite
Communication	Computer hardware & software architectures, machining Greek (native), English (fluent), German (basic), team player, science & technology enthusiast, able to work and deliver under strict deadlines

## ADDITIONAL & RECREATIONAL ACTIVITIES

- Mountain Steward & Vice Chair, co-organized +50 educational L.1-2 hikes of approx. 50 hikers
- Piano (Intermediate '00), Guitar (self-taught '01), Music theory and harmony ('00)
- Choir member: Byzantine Choir Crete ('24), Music academy & Chaplaincy ('98) of Ag. Nikolaos
- European driving licence: car category B (full, clean), motorbike category A (full, clean)
- When not in the office/lab you will also find me enjoying one of the following: swimming, hiking, running, table tennis, volleyball, squash, cooking

## PUBLICATIONS

### Peer-reviewed journals

- 1 **G.E.Arnaoutakis et al.** (2024). [Ultra-broadband near-infrared upconversion for solar energy harvesting](#). *Solar Energy Materials and Solar Cells* 2024, 269:112783
- 2 **G.E.Arnaoutakis et al.** (2024). [Energy Yield of Spectral Splitting Concentrated Solar Power Photovoltaic Systems](#). *Energies* 17(3), 556
- 3 **G.E.Arnaoutakis et al.**(2023) [Criteria-Based Model of Hybrid PV-Wind Energy System with Micro-CAES](#), *Mathematics* 11(2), 391
- 4 **G.E.Arnaoutakis et al.**(2022) [Dynamic Modeling of Combined Concentrating Solar Tower and Parabolic Trough for increased day-to-day performance](#), *Applied Energy* 323, 119450
- 5 **G.E.Arnaoutakis et al.**(2022) [Combined Wind-Pumped Hydro Storage Plant with a CSP Plant for Insular Systems: A Case Study for Rhodes](#), *Energies* 15 (18), 6822
- 6 **G.E.Arnaoutakis et al.** (2022) [CombiCSP: A python routine for dynamic modeling of concentrating solar power plants](#), *Software Impacts*, 13, 100367
- 7 D.A.Katsaprakakis A.Proka, D.Zafirakis, **G.E.Arnaoutakis et al.** (2022) [Greek Islands' Energy Transition: Lighthouse Projects to Energy Communities](#), *Energies*, 15 (16), 5996
- 8 **G.E.Arnaoutakis**, E.Favilla, M.Tonelli and B.S.Richards (2022) [Single crystal monolithic upconverter solar cell device tandems with integrated optics](#), *J.Opt.Soc.Am.B*, 39, 239-247
- 9 P.Manley, M.Segantini, D.Ahiboz, M.Hammerschmidt, **G.E.Arnaoutakis et al.** (2021) [Double-layer metasurface for enhanced photon up-conversion](#), *APL Photonics* 6, 036103
- 10 **G.E.Arnaoutakis** & D.A.Katsaprakakis (2021) [Concentrating Solar Power Advances in Geometric Optics, Materials and System Integration](#), *Energies* 14, 6229
- 11 **G.E.Arnaoutakis** & D.A.Katsaprakakis (2021) [Energy Performance of Buildings with Thermochromic Windows in Mediterranean Climates](#), *Energies* 14, 6977
- 12 N.S.Mahon, O.V.Korolik, M.V.Khenkin, **G.E.Arnaoutakis et al.** (2019) [Photoluminescence kinetics for monitoring photoinduced processes in perovskites](#), *Sol.Ener.*, **195**, 114-120
- 13 P.Lutsyk, M.AIAraimi, **G.E.Arnaoutakis et al.** (2019) [Self-Assembly 2 Types of J-Aggregates](#), *J.Phys.Chem.C*,123,32,19903-19911, [PhysOrg](#)
- 14 R.Guo, M.V.Khenkin, **G.E.Arnaoutakis et al.** (2019) [Initial Stages of MAPbI3 Perovskite Photodegradation: Concentrated Sunlight Accelerated Aging](#), *SolarRRL*, 1900270
- 15 **G.E.Arnaoutakis** & B.S.Richards (2018) [Geometrical concentration for enhanced up-conversion: A review of recent results in energy and biomedical applications](#),*Opt.Mat.***83**,47-54
- 16 Z.E.Koura, M.Cazzanelli, **G.E.Arnaoutakis et al.** (2016) [Cu and N TiO2 Films: Charge Carrier PL Dynamics for Water Splitting](#), *J.Phys.Chem.C*, **120 (22)**, 12042-12050
- 17 **G.E.Arnaoutakis et al.** (2015) [Enhanced up-conversion solar cells by the integration of compound parabolic concentrating optics](#), *Sol.En.Mat.Sol.Cells*, **140**, 217-223. Elsevier *Energy*
- 18 **G.E.Arnaoutakis et al.** (2014) [Enhanced up-conversion for photovoltaics via concentrating integrated optics](#), *Opt. Exp.*, **22(102)**, A452-A464
- 19 **G.E.Arnaoutakis et al.** (2013) [Coupling of sunlight into optical fibres and spectral dependence for solar energy applications](#), *Sol.Ener.*,**93**,235-243

### Papers in preparation/under review

- 20 **G.E.Arnaoutakis et al.** [Near-infrared upconversion in silica fibers](#), *in preparation*
- 21 **G.E.Arnaoutakis et al.** [In-situ photoluminescence of halide perovskites](#), *in preparation*
- 22 **G.E.Arnaoutakis et al.** [Fixed and Tracking PV performance in Crete](#), *in preparation*
- 23 A.Vossier, **G.E.Arnaoutakis et al.**[High solar concentration photovoltaics](#), *in preparation*

### Conference and workshop proceedings

- 24 D.A.Katsaprakakis, **G.E.Arnaoutakis**, N.Papadakis. Parametric Dimensioning of Solar Tower Power Stations in Crete and Cyprus, in 13<sup>th</sup> Conf. of Solar Technical Institute, Athens (May24)
- 25 R.Fleischman, R.Aharoni, G.Moses, **G.E.Arnaoutakis et al.** (Sep22) [In-situ PL of Perovskites Under Concentrated Sunlight](#), in *Solar Electricity Symposium*, Sde Boker
- 26 **G.E.Arnaoutakis** (Oct21) [Concentration on upconversion: experiments and prospects](#), in 3<sup>rd</sup> Optics for Solar Energy EU Workshop.
- 27 **G.E.Arnaoutakis** (Sep21) [Solar radiation for power and heat](#), in HMU Researcher Day
- 28 **G.E.Arnaoutakis** (Nov19) [New optics for energy applications](#), in HMU Mech-Eng Seminar
- 29 P.Lutsyk, M.Tesa, **G.E.Arnaoutakis** (Jul19) RSC Materials Chemistry 14, Birmingham, UK
- 30 **G.E.Arnaoutakis et al.** (Jun19) [Concentrated UC threshold](#), in *CLEO/Europe-EQEC*, Munich
- 31 **G.E.Arnaoutakis et al.** (Jun19) [In-situ perovskites sunlight PL](#), in *CLEO/Europe-EQEC*, Munich
- 32 **G.E.Arnaoutakis et al.** (Feb19) [Perovskite sunlight confocal PLS](#), in *NIPHO19*, Jerusalem
- 33 **G.E.Arnaoutakis et al.** (Feb19) [MAPBI3 Photo-degradation](#), in *NIPHO19*, Jerusalem
- 34 **G.E.Arnaoutakis** (Nov17) [Concentrated Spectral Conversion](#), in *SHIFT2017*, Spain (Invited)
- 35 M.Tesa, **G.E.Arnaoutakis et al.** (Nov17) [Upconversion SS & TR PL](#), in *SHIFT2017*, Spain
- 36 **G.E.Arnaoutakis** (Jul17) [PL and TL of Phosphors](#), in *RACI Congress*, Melbourne.
- 37 **G.E.Arnaoutakis et al.** (Jun16) [PL and EL of Organic Solar Cells](#), in 26<sup>th</sup> *OPTO-Taiwan*, Taipei
- 38 **G.E.Arnaoutakis et al.** (May17) [Detection of 102](#), in 21<sup>st</sup> *ISSMD*, Taipei

- 38 **G.E.Arnaoutakis** *et al.* (Jan17) [Detection of 1O<sub>2</sub>](#), in *15<sup>th</sup> SFRR-India-17*, Mumbai
- 39 **G.E.Arnaoutakis** (Nov16) [Applications of Lasers in PL Spectroscopy](#), in *EPFL Photonics Day 2016*, Lausanne (Invited) [Optics.org](#) [ElectroOptics](#) [EPR](#) [NVL](#)
- 40 **G.E.Arnaoutakis** & A.Gakamsky (Sep16) [TRS recipes in food systems](#), in *Photon 16*, Leeds
- 41 R.Fenske & **G.E.Arnaoutakis** (Jul16) [Rare earths PL at quantum limit](#), in *18<sup>th</sup> ICTON*, Trento
- 42 **G.E.Arnaoutakis** *et al.* (Apr16) [TRS in food matrices](#), in *26<sup>th</sup> IUPAC Symposium*, Osaka
- 43 A.Phinikarides, **G.E.Arnaoutakis** *et al.* (Sep14) [PV vs PV/Wind](#), in *29<sup>th</sup> EUPVSEC*, Amsterdam
- 44 **G.E.Arnaoutakis** *et al.* (Sep14) [Non-imaging up-conversion PV](#), in *29<sup>th</sup> EUPVSEC*, Amsterdam
- 45 J.Marques-Hueso, **G.E.Arnaoutakis** *et al.* (Aug14) [Nanophotonic UC PV](#), in *ECM2*, Aberdeen
- 46 **G.E.Arnaoutakis** *et al.* (Aug14) [Up-conversion PV Systems](#), in *ECM2*, Aberdeen (Invited)
- 47 **G.E.Arnaoutakis** *et al.* (May14) [Integrated optics for up-conversion PV](#), in *PRE'14*, Donostia
- 48 B.S.Richards, **G.E.Arnaoutakis** *et al.* (Nov13) [C-Si UC-DC](#), *OSA PV.2013.PT3C*, Tucson
- 49 **G.E.Arnaoutakis** *et al.* (Nov13) [β-NaYF<sub>4</sub>:Er<sup>3+</sup> CPV Systems](#), in *OSA PV.2013.PT3C*, Tucson
- 50 M.Theristis, **G.E.Arnaoutakis** *et al.* (Sep13) [HCPV Spectral Model](#), *UKHTC13*, London
- 51 **G.E.Arnaoutakis** *et al.* (Apr12) [White light in fibres for CPV](#), in *SPIE 843811*, Brussels

#### Other publications

- 52 **G.E.Arnaoutakis** (2017) [PL and TL of Phosphors](#), Edinburgh Instr, AN\_P38 [GMP](#)
- 53 **G.E.Arnaoutakis** (2017) [SS and TR Spectroscopy of Oil and Honey](#), AN\_P29
- 54 **G.E.Arnaoutakis** (2017) [Kinetics of Persistent Luminescence Phosphors](#), AN\_P28
- 55 M.Tesa, **G.E.Arnaoutakis** (2016) [EES with CCDs](#), AN\_P36 [Photonics.com](#) [ElectroOptics](#) [OptiXs](#)
- 56 **G.E.Arnaoutakis** *et al.* (2016) [Semiconductor Charge Carrier Recombination](#), AN\_P35
- 57 **G.E.Arnaoutakis** *et al.* (2016) [Organic Matter in Water](#), AN\_P30 [ElectroOptics](#)
- 58 **G.E.Arnaoutakis** & D.Näther (2016) [Temperature quenching fluorescence](#), TN\_P27
- 59 **G.E.Arnaoutakis** *et al.* (2016) [PL and EL of Organic Solar Cells](#), AN\_P26 [ElectroOptics](#)
- 60 **G.E.Arnaoutakis** (2016) [Microcrystalline Phosphors Chromaticity](#), TN\_P32
- 61 **G.E.Arnaoutakis** & A.Gakamsky (2015) [Liquid Samples Transmission/Absorbance](#), TN\_P10
- 62 **G.E.Arnaoutakis** & A.Gakamsky (2015) [EES of SWCN](#), AN\_P24
- 63 G.Accorsi, G.Verri, **G.E.Arnaoutakis** (2015) [Artwork Pigments](#), AN\_P23
- 64 **G.E.Arnaoutakis** *et al.* (2015) [Detection of 1O<sub>2</sub>](#), TN\_P25
- 65 **G.E.Arnaoutakis** (2015) [Absolute quantum yield of UV/NIR samples](#), AN\_P19
- 66 **G.E.Arnaoutakis** (2015) [Up-conversion in Rare-earths](#), AN\_P18
- 67 **G.E.Arnaoutakis** (2015) [Fluorescence of Wine](#), AN\_P17 [ElectroOptics](#)

Up-to-date publication list also at [Google Scholar](#), [ORCID](#) and manuscripts at [ResearchGate](#)