

## **CURRICULUM VITAE**

Name : **Nikolaos Merlemis**  
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### **Education**

9/12/2002      **Ph.D** - Atomic, Molecular & Laser physics (experimental). Thesis title: “Study of the coherent emission of radiation and quantum interference in potassium atoms”.  
Physics Department, University of Crete, Greece.  
5/12/1995      **MSc** - Atomic & Molecular Physics.  
Physics Department, University of Crete, Greece.  
25/5/1993      **BSc** - Physics.  
Physics Department, University of Patras, Greece.

### **Languages**

- Greek – fluently as native language
  - English – excellent (C2)
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### **Current Academic Position**

20/6/2023 - Today      **Associate Professor**, Department of Surveying and Geoinformatics Engineering, University of West Attica.  
26/9/2018 – 19/6/2023      **Assistant Professor**, Department of Surveying and Geoinformatics Engineering, University of West Attica.

### **Experience in Teaching Undergraduate Courses**

2023 – Today      Associate Professor  
Courses: Physics II (Electromagnetism & Optics), Physics I (Mechanics), Applied Optics and laser technologies.  
Department of Surveying and Geoinformatics Engineering, University of West Attica.

2019 – 2023      Assistant Professor  
Courses: Physics II (Electromagnetism & Optics), Physics I (Mechanics), Applied Optics and laser technologies.  
Department of Surveying and Geoinformatics Engineering, University of West Attica.

2018 – 2019      Assistant Professor  
Courses: Physics II, Physics I, Mathematics II, Applied Optics. Department of Surveying and Geoinformatics Engineering, University of West Attica.

2016 – 2018      Adjunct Assistant Professor  
Courses: Physics, Department of Energy Technology Engineering.  
Faculty of Technological Applications, Technological Education Institute (TEI) of Athens.

2013 – 2018      Adjunct Assistant Professor  
Courses: Physics laboratories «I, II, III».

Department of Energy Technology Engineering, Faculty of Technological Applications, Technological Education Institute (TEI) of Athens.

- 2009 – 2014  
Adjunct Assistant Professor  
Courses: Laboratory of «Optical telecommunications» and «Introduction to telecommunications».  
Department of Electronics Engineering, Faculty of Technological Applications, Technological Education Institute (TEI) of Piraeus.
- 2003 – 2013  
Adjunct Assistant Professor  
Courses: Physics laboratories «I, II, III».  
Department of Physics, Chemistry & Materials Technologies, Faculty of Technological Applications, Technological Education Institute (TEI) of Athens.
- 2007 – 2013  
Adjunct Assistant Professor  
Courses: Physics laboratories «I».  
Department of Physics, Chemistry & Materials Technologies, Faculty of Technological Applications, Technological Education Institute (TEI) of Piraeus.
- 2009 – 2011  
Adjunct Assistant Professor  
Courses: Physics laboratories.  
General Department, ASPETE (School of Pedagogical and Technological Education).
- 1993 – 1999  
Teaching Assistant  
Courses: “Semiconductor Physics laboratory”, “Physics laboratory III (optics)”, “Advanced Physics laboratory”, “Lasers & Applications”, “Computers applications”, “Generation & Propagation of radiation”, “Computers I (Fortran programming)”, “new technologies in education”  
Department of Physics, University of Crete.

### **Experience in Teaching Postgraduate Courses**

- 2021 – 2023  
Course: “State-of-the-art technologies in Geodesy and Surveying”. Lectures title: “Laser Technologies – Applications – Laser Ranging – Laser Safety”.  
MSc program “Geospatial Technologies”, Department of Surveying and Geoinformatics Engineering, University of West Attica.
- 2016 – 2017  
Course: “Laser and Ophthalmology”.  
MSc program “Investigative Techniques in Optometry”, Department of Optics & Optometry, TEI of Athens.
- 2003 – 2013  
Course: “Broadband & Mobile networks”.  
MSc program “E-commerce”, Department of Mathematics and Accounting, TEI of Piraeus in cooperation with the University of Kingston, Faculty of Technology, School of Computing and Information Systems.
- 2012 – 2014  
Supervision of postgraduate thesis.  
MSc program “Data Communications”, Department of Electronics Engineering & Department of Automation Engineering, TEI of Piraeus in cooperation with the University of Kingston, Faculty of Technology, School of Computing and Information Systems.

## Teaching Experience/Mentorship

1. Member of the supervision committee for the doctoral thesis entitled “*Nonlinear quantum processes in the interaction of laser light and potassium atoms*”, George Papademetriou, Physics Department, University of Patras, Greece, 2019.
  2. Supervised 27 postgraduate/undergraduate theses across various topics within laser technologies, e-commerce and data communications fields.
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## Professional & Research experience

- 01/3/2012 – 30/6/2014    Research associate  
Research project: “Photodiagnosis of skin cancer using the method of laser induced fluorescence and dosimetry of the photodynamic therapy”.  
Research Program «Archimedes III, ESPA (2007-2013), TEI of Athens.
- 01/4/2014 – 4/07/2014    Research associate  
Research project: “Research for the development of a prototype methodology for cleaning of protein-textured materials in cultural & national heritage items, using laser radiation”.  
Research Program «Archimedes III, ESPA (2007-2013), TEI of Athens.
- 1/03/2006 – 8/09/2009    Research associate  
Development of two remote controlled Physics laboratory experiments.  
Company: “Microtechniki – Manousos Derleres”.
- 1/3/2004 – 31/12/2004    Postdoctoral Research fellow  
Research project: “Radiation generation in short wavelengths (VUV and XUV)”.  
Research Program: “Karatheodoris”.  
Laboratory of Laser and nonlinear optics, Department of Physics, University of Patras.
- 1/6/2004 – 31/12/2004    Postdoctoral Research fellow  
Research project: “Development of a coherent ultraviolet radiation system for photolithography applications”.  
Research Program: “02ΠΠΑΞΕ217” – “Spin off, Phase A”.  
Laboratory of Laser and nonlinear optics, Department of Physics, University of Patras.
- 01/3/2004 – 31/8/2006    Postdoctoral Research fellow  
Research project: “Study of the generation of radiation in the EUV spectral region (Extreme Ultraviolet  $\lambda < 150$  nm)”.  
Research Program: “Pythagoras I”.  
Laboratory of Laser and nonlinear optics, Department of Physics, University of Patras.
- 1/10/2002 – 31/5/2003    Research fellow  
Research project: “Impact of Alternative Fluorinated Alcohols and Ethers on the Environment – a laboratory and Modeling study”.  
EU, DGXII, Fifth Framework Program, Environment and Sustainable Development.  
Photochemistry and Kinetics Laboratory, Chemistry Department, University of Crete.

- 1/12/1999 – 23/7/2007 Co-founder - Technical and R&D manager  
Development of laser projector systems, Optoelectronics and telecommunication systems employed for the architectural illumination of large buildings, and for outdoor and indoor advertising purposes.  
Digital Promotion Services LTD.
- 01/4/1996 – 18/7/1996 Research fellow  
Research project: “Development and applications of high temperature superconductors”.  
Research Program: “EPET”, General Secretariat of research and technology.  
Laboratory of Laser and nonlinear optics, Department of Physics, University of Crete.
- 01/7/1995 – 10/4/1996 Research fellow  
Research project: “Development of coherent radiation in the VUV & XUV spectral region”.  
Research Program: “PENED”, General Secretariat of research and technology.  
Laboratory of Laser and nonlinear optics, Department of Physics, University of Crete.
- 1/8/1996 – 30/6/2000 System Administrator & Web developer  
System and Network administrator, web developer and project manager for several E-commerce projects. Research associate and consultant for the establishment of the “Technology transfer center”.  
Science & Technology Park of Crete, Foundation of Research & Technology of Crete.
- 06/1992 – 07/1993 Employee - programmer  
Design and development of the computer network connecting the company’s central offices in Athens with all the Greek airports.  
Hellenic Petroleum S.A., Department of Programming and development.

## **Honors & Awards**

Research Scholarships during MSc & PhD studies:

- Department of Physics, University of Crete
- Institute of Electronic Structure and Lasers, Foundation of Research & Technology of Crete.

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## **Research Activities & Interests**

- Two-photon Laser Spectroscopy, Laser Spectroscopy & LIF (Laser Induced Fluorescence) techniques.
  - Two-photon excitation of atomic systems, nonlinear optics and generation of radiation with wave-mixing mechanisms, Electromagnetically Induced Transparency (EIT) & Amplification Without Inversion (AWI). Quantum Optics.
  - Development of Extreme UV coherent sources in the VUV (100-200 nm) and EUV (below 100 nm) spectral regions.
  - Laser ablation.
  - Educational experiments in Physics and Optics.
  - Uncertainty Quantification.
  - Applications of Lasers and Optics in Geospatial technologies.
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## Research appointments in the EU

- 27/7/2024 – 2/8/2024, group leader, research title: «Customization of biocompatible polymers and Intraocular lenses IOLs by femtosecond Laser Ablation», Vilnius University Laser Center (VULRC), Vilnius, Lithuania, χρηματοδότηση από το LASERLAB-EUROPE (PID: 22069).
- 11/7/2010 – 23/7/2010, group leader, research title: “Investigation of the laser-potassium atom interaction”, Vilnius University Laser Center (VULRC), Vilnius, Lithuania, funded by Laserlab-Europe network (grant agreement n° 228334, EC's 7<sup>th</sup> Framework Programme, Proj. No. vulrc001570).
- 8/11/2008 – 19/11/2008, research title: “Investigation of conical emissions in potassium atoms induced by fsec two-photon excitation», Quantum electronics department and laser research center, Vilnius University, Vilnius, Lithuania, Laserlab-Europe network, 6<sup>th</sup> framework program of EU.
- 7 July 2007 – 23 July 2007, research title: “Investigation of the amplification without population inversion in Sodium and Potassium vapour by using optical parametric amplified ultra-short laser pulses”, Quantum electronics department and laser research center, Vilnius University, Vilnius, Lithuania, Laserlab-Europe network, 6<sup>th</sup> framework program of EU.

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## Research Overview:

Publications in International peer-reviewed scientific journals: **23**

Publications in International conferences proceedings (peer-reviewed full text): **11**

Chapters in scientific Handbooks: **3**

Presentations in international conferences (peer-reviewed Abstract): **7**

Publications/ Announcements in national conferences: **7**

Publications in other scientific or technical journals: **3**

Patents: **1**

Reviewer: J. Phys. B: Atomic, Molecular and Optical Physics, Optics Communications, Optical Engineering, The European Physical Journal D, Photochem

Citations (Google Scholar, ID: [SppZ-F8AAAAAJ](https://scholar.google.com/citations?user=SppZ-F8AAAAAJ)): **249**, h-index: **9**,

Citations (Scopus Author ID: [7801570909](https://orcid.org/0000-0002-7697-4202)): **181**, h-index: **8**

Web of Science (ResearcherID: AAR-9354-2020): **156**, h-index: **7**

ORCID iD: <https://orcid.org/0000-0002-7697-4202>

## Publications in international peer-reviewed scientific journals

- J1. N. Merlemis, E. Drakaki, E. Zekou, G Ninos, A. L. Kesidis, “Laser induced fluorescence and machine learning: a novel approach to microplastic identification.”, *Appl. Phys. B*, 130, 168, <https://doi.org/10.1007/s00340-024-08308-8>, 2024.
- J2. V. Bartzis, N. Merlemis, G. Ninos, I.E. Sarris, “Exploring the Impact of Steric Effects on Ion Removal of Water Solutions under the Influence of an Electric Field”, *Water*, 16(14):1983, <https://doi.org/10.3390/w16141983>, 2024.
- J3. L.-M. Misthos, V. Krassanakis, N. Merlemis, A. L. Kesidis, “Modeling the Visual Landscape: A Review on Approaches, Methods and Techniques”, *Sensors* 23, 8135. <https://doi.org/10.3390/s23198135>, 2023.
- J4. A.L Kesidis, V. Krassanakis, L.-M. Misthos, N. Merlemis, “patchIT: A Multipurpose Patch Creation Tool for Image Processing Applications”, *Multimodal Technologies and Interaction* 6, no. 12: 111, <https://doi.org/10.3390/mti6120111>, 2022.
- J5. V. Pagounis, N. Merlemis, D. Anastasiou, O. Arabatzi, V. Zacharis, M. Tsakiri, “Compact Testing of Total Station Instruments Using Folded Optics”, *Journal of Applied Engineering Sciences (JAES)*, vol.12, no.1, pp.71-76. <https://doi.org/10.2478/jaes-2022-0011>, 2022.

- J6. G. Ninos, V. Bartzis, N. Merlemis, I. Sarris, “Uncertainty Quantification implementations in human hemodynamic flows”, *Computer Methods and Programs in Biomedicine*, 203, 106021, <https://doi.org/10.1016/j.cmpb.2021.106021>, 2021.
- J7. Nikolaos Merlemis, Anastasios L. Kesidis and Ioannis Sianoudis, “Measurement of laser beam spatial profile by laser scanning”, *European Journal of Physics*, 42, 015304, <https://doi.org/10.1088/1361-6404/abba01>, 2020.
- J8. N. Merlemis, G. Papademetriou, D. Pentaris, T. Efthimiopoulos, V. Vaicaitis, “Axial coherent emissions controlled by an internal coupling field in an open 4-level potassium system”, *Applied Physics B*, Volume 124, Issue 7, <https://doi.org/10.1007/s00340-018-7015-9>, 2018.
- J9. D. Pentaris, G. Papademetriou, T. Efthimiopoulos, N. Merlemis and A. Lyras, “Emissions enhancement in a pump–coupling V-type coherently controlled four-level atomic system”, *Journal of Modern Optics*, Volume 60, Issue 21, <https://doi.org/10.1080/09500340.2013.863985>, 2013.
- J10. D. Pentaris, T. Efthimiopoulos, N. Merlemis, V. Vaicaitis and A. Lyras, “Emissions from high density potassium atoms excited by either nanosecond or femtosecond laser pulses”, *Applied Physics B*, Volume 107, Issue 1, 71-83, <https://doi.org/10.1007/s00340-012-4910-3>, 2012.
- J11. Pentaris D, Efthimiopoulos T, Merlemis N and Lyras A “Control of the emission channels energy flow in a nonlinear laser–potassium atom Interaction”, *Journal of Physics B: Atomic, Molecular and Optical Physics*, 45, 205505, <https://doi.org/10.1088/0953-4075/45/20/205505>, 2012.
- J12. D. Pentaris, T. Efthimiopoulos, N. Merlemis & A. Lyras, “Temporal dynamics of the internally generated radiations in a two-photon excited four-level potassium atom”, *Journal of Modern Optics*, <https://doi.org/10.1080/09500340.2011.640950>, 2011.
- J13. A. Armyras, D. Pentaris, T. Efthimiopoulos, N. Merlemis and A. Lyras, “Saturation and population transfer of a two-photon excited four-level potassium atom”, *Journal of Physics B: Atomic, Molecular and Optical Physics*, 44, 165401, <https://doi.org/10.1088/0953-4075/44/16/165401>, 2011.
- J14. T. Efthimiopoulos, N. Merlemis, M. E. Movsessian, D. Pentaris, and M. Katharakis, “Action of counter-propagating laser beams on two-photon excitation of potassium vapour”, *Journal of Physics B: Atomic, Molecular and Optical Physics*, 43, 055401, <https://doi.org/10.1088/0953-4075/43/5/055401>, 2010.
- J15. D. Pentaris, T. Efthimiopoulos, N. Merlemis and V. Vaicaitis, “Axial and conical parametric emissions from potassium atoms under two-photon fsec excitation”, *Applied Physics B*, 98, 383-390, <https://doi.org/10.1007/s00340-009-3801-8>, 2009.
- J16. D. Pentaris, T. Marinos, N. Merlemis and T. Efthimiopoulos, “Optical free induction memory in potassium vapor under a partially-truncated two-photon excitation”, *Journal of Modern Optics*, 56, 840-850, <https://doi.org/10.1080/09500340802357323>, 2009.
- J17. T. Efthimiopoulos, H. Kiagias, S. Christoulakis and N. Merlemis, “Bubble creation and collapse during excimer laser ablation of weak absorbing polymers”, *Applied Surface Science*, 254, 5626-5630, <https://doi.org/10.1016/j.apsusc.2008.03.053>, 2008.
- J18. N. Merlemis, E. Reppa and T. Efthimiopoulos, “Narrowband emission of Argon dimers in a DC discharge with supersonic expansion at 126 nm”, *Applied Physics B*, 91, 183-188, <https://doi.org/10.1007/s00340-008-2939-0>, 2008.
- J19. N. Merlemis, A. Lyras, M. Katharakis and T. Efthimiopoulos, “Amplified spontaneous emission without population inversion in potassium vapor by internally generated fields”, *Journal of Physics B: Atomic, Molecular and Optical Physics*, 39, 1913-1927, <https://doi.org/10.1088/0953-4075/39/8/009>, 2006.
- J20. N. Merlemis, M. Katharakis, E. Koudoumas and T. Efthimiopoulos, “Stimulated emissions and quantum interference in potassium-atom laser interaction”, *Journal of Physics B: Atomic, Molecular and Optical Physics*, 36, 1943-1956, <https://doi.org/10.1088/0953-4075/36/10/305>, 2003.
- J21. M. Katharakis, N. Merlemis, A. Serafetinides, and T. Efthimiopoulos, “Four wave mixing and parametric four wave mixing near the 4P-4S transition of potassium atom”, *Journal of Physics B: Atomic, Molecular and Optical Physics*, 35, 4969-4980, <https://doi.org/10.1088/0953-4075/35/24/302>, 2002.
- J22. T. Efthimiopoulos, M. E. Movsessian, M. Katharakis, N. Merlemis, K. Chrissopoulou, “Study of the  $5p_{3/2}$ - $4s_{1/2}$  emission in K under two photon  $4s_{1/2}$ - $6s_{1/2}$  excitation”, *Journal of Physics B: Atomic, Molecular and Optical Physics*, 29, 5619-5627, <https://doi.org/10.1088/0953-4075/29/22/032>, 1996.

- J23. T.Efthimiopoulos, M. E. Movsessian, M Katharakis and N. Merlemis, “Cascade emission and four-wave mixing parametric process in potassium”, *Journal of Applied Physics*, 80 (2), 639-643, <https://doi.org/10.1063/1.362872>, 1996.

### **Publications in international conferences proceedings (peer-reviewed full text)**

- C1. E. Drakaki, E. Zekou, M. Serris, N. Merlemis, “The Detection of Plastic and Petroleum Hydrocarbon Pollution at Sea with Laser-Induced Fluorescence”, *Environ. Sci. Proc.* 26, 12. <https://doi.org/10.3390/envirosci2023026012>, 2023.
- C2. Vasileios Bartzis, Ioannis Vamvakas, Nikolaos Merlemis & Evangelini Zekou, “Spherical aberration experimental apparatus for undergraduate optics courses”, *World Transactions on Engineering and Technology Education*, Vol.17, No.3, [http://wiete.com.au/journals/WTE&TE/Pages/Vol.17,%20No.3%20\(2019\)/33-Bartzis-V.pdf](http://wiete.com.au/journals/WTE&TE/Pages/Vol.17,%20No.3%20(2019)/33-Bartzis-V.pdf), 2019.
- C3. E. Drakaki, M. Makropoulou, A. A. Serafetinides, N. Merlemis, I. Kalatzis, I. A. Sianoudis, O. Batsi, E. Christofidou, A. J. Stratigos, A. D. Katsambas, Ch. Antoniou, “Laser induced autofluorescence for diagnosis of non-melanoma skin cancer”, *Proc. SPIE 9447, 18th International School on Quantum Electronics: Laser Physics and Applications*, 94470Y (January 8, 2015); <https://doi.org/10.1117/12.2175647>, 2015.
- C4. Nikolaos Merlemis, Georgios Mitsou, Eleni Drakaki and Ioannis Sianoudis, “Educational experimental setup based on laser beam scanners”, *PhyDid B-Didaktik der Physik-Beiträge zur DPG-Frühjahrstagung (ISSN 2191-379X), BEITRAG DD 15.31*, <https://ojs.dpg-physik.de/index.php/phydid-b/article/view/541>, 2014.
- C5. Sianoudis, Ioannis, Nikolaos Merlemis, and Efstathios Kamaratos. "An educational experiment on optical phenomena associated with an electrical discharge, plasma creation and light emission.", *DPG Spring Meeting of the DPG Divisions Educational Physics and Hadronic and Nuclear Physics*, DD 18.6, p38, Muenster, Germany, March 21-25, 2011, *PhyDid B - Didaktik der Physik - Beiträge zur DPG-Frühjahrstagung*, (18 Juli 2011), <http://phydid.physik.fu-berlin.de/index.php/phydid-b/article/view/255>, 2011.
- C6. K. Pipergias, D. Yiasemides, E. Reppa, N. Merlemis, V. Giannetas and T. Efthimiopoulos, “VUV emission of Ar dimmers in a supersonic expansion excited by a low energy discharge”, *ICO-PHOTONICS-“Emerging Trends and Novel Materials in Photonics” 2009*, *AIP Conf. Proc.* 1288, 147 (2010); <https://doi.org/10.1063/1.3521378>, 2010.
- C7. A. Armyras, D. Pentaris, N. Merlemis, A. Lyras, and T. Efthimiopoulos, “The saturation effect of the parametric emission in potassium atoms under two photon excitation”, *ICO-PHOTONICS-“Emerging Trends and Novel Materials in Photonics” 2009*, *AIP Conf. Proc.* 1288, 80 (2010); <https://doi.org/10.1063/1.3521378>, 2010.
- C8. D. Pentaris, N. Merlemis, A. Lyras and T. Efthimiopoulos, “Parametric Four-Wave Mixing in low atomic densities of potassium vapor”, *Proceedings of the International Conference on Computational Methods in Science and Engineering 2007 (ICCMSE 2007)*, *AIP Conference Proceedings* 963 (Vol. 2B), 788-791; <https://doi.org/10.1063/1.2836209>, 2007.
- C9. N. Merlemis, M. Katharakis, E. Koudoumas and T. Efthimiopoulos, “Wave mixing and quantum interference effect in Potassium atoms”, *Proc. SPIE 5131, Third GR-I International Conference on New Laser Technologies and Applications*, (9 April 2003), <https://doi.org/10.1117/12.513509>, Vol 5131, 83-90, 2003.
- C10. M. Katharakis, N. Merlemis, A. Serafetinides, and T. Efthimiopoulos, “Four Wave Mixing near the 4P-4S transition of Potassium atoms”, *Proc. SPIE 5131, Third GR-I International Conference on New Laser Technologies and Applications*, (9 April 2003), <https://doi.org/10.1117/12.513498>, Vol 5131, 73-77, 2003.
- C11. T. Efthimiopoulos, M. Katharakis, N. Merlemis and M.E. Movsessian, “Action of Counter-Propagating Waves on two Photon Excitation Processes in Potassium Vapor”, *Conference on LASER PHYSICS-96*, October 21-25, 26-34, 1996, Ashtarak, Armenia.



## Chapters in scientific Handbooks

- B1. Vasileios Bartzis, Nikolaos Merlemis, Michalis Serris and George Ninos, “Generalized intensity dependent multiphoton Jaynes-Cummings model”, In: Daras, N.J., Rassias, T.M. (eds) *Approximation and Computation in Science and Engineering. Springer Optimization and Its Applications*, vol 180, pp. 91-102. *Springer, Cham*. [https://doi.org/10.1007/978-3-030-84122-5\\_6](https://doi.org/10.1007/978-3-030-84122-5_6), 2022.
- B2. Nikolaos Merlemis, Andreas Lyras, Dionysios Pentaris, Georgios Papademetriou and Thomas Efthimiopoulos, “Numerical calculations on multi-photon processes in alkali metal vapors”, In: Daras, N.J., Rassias, T.M. (eds) *Approximation and Computation in Science and Engineering. Springer Optimization and Its Applications*, vol 180, pp. 627-642. *Springer, Cham*. [https://doi.org/10.1007/978-3-030-84122-5\\_34](https://doi.org/10.1007/978-3-030-84122-5_34), 2022.
- B3. N. Merlemis, D. Zevgolis, “Wavelength Division Multiplexing Technologies and their applications”, Chapter IV of the “Handbook of research on Heterogeneous Next Generation Networking: Innovations and Platforms”, Editors: S A Kotsopoulos and K G Ioannou, *Information Science Reference (an imprint of IGI Global)*, ISBN 978-1-60566-108-7, <https://doi.org/10.4018/978-1-60566-108-7.CH004>, 2008.

## Presentations in international conferences (peer-reviewed Abstract):

- P1. Merlemis, N., Kesidis, A., Misthos, L.-M., and Krassanakis, V., “Leveraging machine learning and spectroscopic techniques towards estimating paper map scale levels”, *Abstr. Int. Cartogr. Assoc.*, 7, 104, <https://doi.org/10.5194/ica-abs-7-104-2024>, 2024.
- P2. Merlemis, N., Kesidis, A., Misthos, L.-M., Zekou, E., Drakaki, E., and Krassanakis, V., “Quantifying visual heterogeneity of paper maps using diffuse reflectance spectroscopy”, *Abstr. Int. Cartogr. Assoc.*, 5, 60, <https://doi.org/10.5194/ica-abs-5-60-2022>, 2022.
- P3. Kesidis, A. L., Krassanakis, V., Merlemis, N., and Misthos, L.-M., “A multipurpose patch creation tool for efficient exploration of digital cartographic products”, *Abstr. Int. Cartogr. Assoc.*, 5, 56, <https://doi.org/10.5194/ica-abs-5-56-2022>, 2022.
- P4. Pentaris D., Merlemis N., Vaicaitis V. and Efthimiopoulos T. “Coherent emissions from K atoms - two-photon  $4S_{1/2}$ - $6S_{1/2}$  femtosecond single laser interaction” 17th International Laser Physics Workshop, June 30-July 4, Trondheim, Norway, 2008.
- P5. N. Merlemis, T. Efthimiopoulos, M. Katharakis and A. Lyras, “Electromagnetically induced transparency by internally generated fields under two-photon excitation”, *EQEC '05 - European Conference on Quantum Electronics (EQEC)*, doi: [10.1109/EQEC.2005.1567255](https://doi.org/10.1109/EQEC.2005.1567255), 2005.
- P6. N. Merlemis, T. Efthimiopoulos, M. Katharakis, "Quantum interference in a wave-mixing scheme with the internally generated emissions in potassium atoms ", 9th International Conference on Multiphoton Processes (ICOMP IX), Ελούντα, Κρήτη, 18th - 22nd Οκτωβρίου 2002.
- P7. N. Merlemis, T. Efthimiopoulos, M. Katharakis, "Electromagnetically induced transparency in potassium by an internally generated field", *Photonic Band Gap Materials, NATO ASI, Ελούντα, Κρήτη*, 19-30 Ιουνίου 1995.

## Publications in National scientific or technical journals:

- E1. Evangelini Zekou, Ioannis Vamvakas, Vasileios Bartzis and Nikolaos Merlemis, “Calculation of the focal length of a two-lens system –an educational experiment”, *e-journal of Science & Technology*, vol. 15, 1, pp 41-48, 2020.
- E2. E. Drakaki, N. Merlemis, G. Mitsou, I Vamvakas, M. Kompitsas and I. A. Sianoudis, «Portable system for the study of diffuse reflection and Laser Induced Fluorescence», *e-journal of Science & Technology*, vol. 10, 3, pp 65-75, 2015.
- E3. N. Merlemis, “Design of linear power supplies”, *Technical choice*, 296, pp. 112-113, 1991.



## **Publications/ Announcements in national conferences:**

- CE1. V. Krassanakis, A. Kesidis, N. Merlemis, L.-M. Misthos, A. Pappa, D. Liaskos, N. Pinirou, "Methods and Techniques for Recording, Analyzing and Modeling the Visual Perception and Cognition of Cartographic Stimuli", 6<sup>th</sup> Panhellenic Conference on Cognitive Science, Hellenic Cognitive Science Society, 21-24 Sept. 2023, Xilokastro, Peloponnese, Greece.
- CE2. E. Drakaki, I.A. Sianoudis, M. Makropoulou, N. Merlemis A.A. Serafetinides, Ch. Evangelatos Mitsou, I. Valais, E. Zois, I. Vamvakas, I. Karachalios, D. Mathes, I. Kalatzis, M Kompitsas, E. Christofidou, M. Kosmadaki, I. Stefanaki, C. Dessinioti, A.J. Stratigos, A.D. Katsambas, and Ch. Antoniou, "Light induced fluorescence and reflectance diagnostic spectroscopic technique in photodynamic therapy of skin cancer", 1st international conference "Science IN Technology" (SCINTE 2015) Athens, 5-7 November 2015.
- CE3. Ch. Samaras, N. Merlemis, "Cloud Based Security services in Smartphones", International Scientific Conference eRA – 10, The SynEnergy Forum, Piraeus University of Applied Sciences (P.U.A.S.), 2015.
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## **Patents**

- PA1. "Portable System for induced fluorescence and diffuse reflection measurements", I. Sianoudis, N. Merlemis, E. Drakaki, I. Vamvakas, A. P. Serafetinidis, M. Makropoulou, Utility Model Certificate, OBI 20160200058 - 01/10/2015, expiration date 02/10/2022.

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## **Professional Affiliations**

- Greek Physical Society, since 2002.