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EDUCATION AND RESEARCH

Department of Biology, University of Crete, Heraklion, Greece

- Laboratory teaching staff member (Jul. 2024 – now)

Foundation for Research and Technology – Hellas, Institute of Electronic Structure and Laser, Laboratory for Biophotonics and Molecular Imaging

- Postdoctoral Fellow with Dr. Giannis Zacharakis, Jan. 2015 – Jun. 2024

Project 1: Development of novel hybrid diagnostic systems integrating photoacoustic imaging and optical microscopy modalities (confocal fluorescence, harmonics generation) into a single instrument.
Project 2: Development of photoacoustic tomography systems (setup and image reconstruction algorithms) for mesoscopic biological observations
Project 3: Applications of hybrid optical and photoacoustic microscopy / mesoscopy in biomedical research (ocular imaging; cancer formation and growth; skin imaging; melanin quantification in marine organisms; plant biology; developmental biology).
Project 4: World's first application of photoacoustics in heritage science (visualization of well-hidden features in paintings, multi-layered documents and murals; on-line in situ monitoring of laser cleaning interventions on stonework and paintings).
Project 5: Development of novel image processing algorithms incorporating machine learning and deep neural network methodologies for data quantification and classification.
Project 6: Development of multi-parametric (photoacoustics, optical harmonics generation, Raman spectroscopy) label-free imaging systems augmented with wavefront shaping technologies towards the early diagnosis of neurodegenerative disorders through the ocular cavity.
Project 7: Development of a) low-cost multiwavelength photoacoustic imaging devices using CW laser sources, as well as, b) photoacoustic sensors for accurate biomarker monitoring (hemoglobin, melanin, lipids, glucose) based on LEDs or laser diodes.

Technical University of Munich, Germany / Institute of Biological and Medical Imaging (IBMI)

- Postdoctoral Fellow with Prof. Vasilis Ntziachristos, Feb. 2013 – Dec. 2014

Project 1: Development of a five-modal, label-free hybrid microscope integrating multiphoton imaging techniques (two-photon excitation fluorescence, second and third harmonic generation) with photoacoustic microscopy and photoacoustic mesoscopy modalities for multi-scale imaging.
Project 2: Development and optimization of a frequency domain photoacoustic microscope using intensity-modulated CW laser sources for biomedical applications.

Department of Physics, University of Crete, Heraklion, Greece / Foundation for Research and Technology – Hellas, Institute of Electronic Structure and Laser, Non-linear Imaging Laboratory

- Ph.D. in Physics supervised by Prof. Costas Fotakis, Apr. 2013

Thesis: "Non-linear optical procedures for the diagnostics and processing of biological samples by using ultra-short laser pulses"

Project 1: Optimization and further development of a multiphoton microscope (two-photon excitation fluorescence, second and third harmonic generation)
Project 2: Integration of a nanosurgery sub-system for the in vivo processing of microscopic biological specimens through selective plasma formation with sub-μm spatial precision.
Project 3: Application of multiphoton imaging techniques in biomedical research (non-destructive monitoring of embryogenesis in model organisms, delineation of fundamental aging mechanisms associated to lipid accumulation, evaluation of pre-implantation embryo quality for in-vitro fertilization procedures).
Project 4: Non-biomedical applications of multiphoton techniques in cultural heritage diagnostics, laser-polymer interactions (photoablation), and optical characterization of microlenses.

Department of Medicine, University of Crete, Heraklion, Greece

- M.Sc. in Optics and Vision, Dec. 2008

Department of Physics, University of Crete, Heraklion, Greece

- B.Sc. in Physics, Nov. 2006 (Grade: 7.29 / 10)

REFERENCES

Emeritus Prof. Costas Fotakis
Professor of the Physics Department
of the University of Crete
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e-mail: fotakis[at]iesl.forth.gr

Prof. Vasilis Ntziachristos
Professor of the Electrical, Electronic
and Computer Engineering Department
of the Technical University of Munich
Tel: +49 89 3187 3852,
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Dr. Giannis Zacharakis
Principal Researcher, Head of the
Optical Biomedical Imaging Lab
IESL/FORTH
Tel: +30-2810-391922,
email: zahari[at]iesl.forth.gr

PARTICIPATION IN RESEARCH PROGRAMS

1. **Transfer of Knowledge Marie Curie project NOLIMBA** "Non-linear imaging at microscopic level for biological applications" (2006-2009) – Co-investigator.

2. **Large scale Integrated project (IP) FAST-DOT** "Compact Ultrafast laser sources based on novel quantum dot structure" (2008-2012) – Co-investigator.

3. **Laserlab IV** "The integrated initiative of European Laser Research Infrastructures" (2015-2019) – Scientific supervision of bioimaging facility access.

4. **THALIS Grant "Minos"** with Biomedical Sciences Research Centre Alexander Fleming (2013-2015) – Co-investigator, Scientific management and reporting.

5. **ESPA Excellence Grant** "Skin-DOCtor" (2012-2015) – Co-investigator.

6. **FP7 E.U. ITN** "OILTEBIA" (2013-2017) – Scientific supervision of training program.

7. **ESPA BIOIMAGING-GR** "A Greek Research Infrastructure for Visualizing & Monitoring Fundamental Biological Processes" (2017-2020) – Co-investigator, Scientific supervision of facility access.

8. **POLITEIA - KRIPIS II** "Culture-Technology: New technologies in research, study, documentation and accessibility in the information of items and monuments of cultural heritage" (2017- 2020) – Co-investigator.

9. **ESPA HELLAS CH** "ELI - LASERLAB Europe Synergy, HiPER and IPERION-CH.gr" (2017-2020) – Co-investigator.

10. **EPAnEK Operational Programme** "Competitiveness, Entrepreneurship and Innovation" INNOVA Protect (2018-2021) – WP Leader, Scientific managemenet.

11. **FET project "Dynamic"** (2019 – 2024) – WP Leader, Scientific management.

12. **CoDaFlight Project "Colouring the Dark in Fluorescence Light"** (2023 – 2024) – Co-investigator.

13. **HORIZON Europe "iPhotoCult"** (2024 – now) – WP Leader

SCHOLARSHIPS

1. Scholarship from the Department of Medicine, University of Crete during M.Sc. studies (2007-2008).

2. Scholarship "Heraclitus II – University of Crete", funded by the European Social Fund and national resources during Ph.D. studies (2010-2013).

3. Scholarship ARCHERS (Advancing Young Researchers' Human Capital in Cutting Edge Technologies in the Preservation of Cultural Heritage and the Tackling of Societal Challenges) funded by Stavros Niarchos Foundation (2017-2018).

AWARDS AND DISTINCTIONS

1. M.Sc. studentship awarded from the Department of Medicine, University of Crete for excellent performance in the first year of M.Sc. studies. (2007-2008).

2. Best oral presentation (1st place) for the paper **"**Imaging C. Elegans embryogenesis by third harmonic generation microscopy", International Student Workshop on Laser Applications 2011, Bran, Romania.

PUBLICATIONS IN PEER-REVIEWED JOURNALS

1. **Tserevelakis, G.J.**, Filippidis, G., Krmpot, A.J., Vlachos, M., Fotakis, C., Tavernarakis, N. Imaging Caenorhabditis elegans embryogenesis by third-harmonic generation microscopy (2010) Micron, 41 (5), pp. 444-447.
2. Vounisiou, P., Selimis, A., **Tserevelakis, G.J.**, Melessanaki, K., Pouli, P., Filippidis, G., Beltsios, C., Georgiou, S., Fotakis, C. The use of model probes for assessing in depth modifications induced during laser cleaning of modern

paintings (2010) Applied Physics A: Materials Science and Processing, 100 (3), pp. 647-652.

3. **Tserevelakis, G.J.**, Filippidis, G., Megalou, E.V., Fotakis, C., Tavernarakis, N. Cell tracking in live Caenorhabditis elegans embryos via third harmonic generation imaging microscopy measurements (2011) Journal of Biomedical Optics, 16 (4), art. no. 046019.
4. **Tserevelakis, G.J.**, Psycharakis, S., Resan, B., Brunner, F., Gavgiotaki, E., Weingarten, K., Filippidis, G. Femtosecond laser nanosurgery of sub-cellular structures in HeLa cells by employing Third Harmonic Generation imaging modality as diagnostic tool (2012) Journal of Biophotonics, 5 (2), pp. 200-207.
5. Kyvelidou, C.*, **Tserevelakis, G.J.***, Filippidis, G., Ranella, A., Kleovoulou, A., Fotakis, C., Athanassakis, I. Following the course of pre-implantation embryo patterning by non-linear microscopy (2011) Journal of Structural Biology, 176 (3), pp. 379-386.
6. Selimis, A., **Tserevelakis, G.J.**, Kogou, S., Pouli, P., Filippidis, G., Sapogova, N., Bityurin, N., Fotakis, C. Nonlinear microscopy techniques for assessing the UV laser polymer interactions (2012) Optics Express, 20 (4), pp. 3990-3996.
7. Faraldi, F., **Tserevelakis, G.J.**, Filippidis, G., Ingo, G.M., Riccucci, C., Fotakis, C.Multi photon excitation fluorescence imaging microscopy for the precise characterization of corrosion layers in silver-based artifacts (2013) Applied Physics A: Materials Science and Processing, 111 (1), pp. 177-181.
8. Krmpot, A.J., **Tserevelakis, G.J.**, Murić, B.D., Filippidis, G., Pantelić, D.V. 3D imaging and characterization of microlenses and microlens arrays using nonlinear microscopy (2013) Journal of Physics D: Applied Physics, 46 (19), art. no. 195101.
9. **Tserevelakis, G.J.**, Selimis, A., Pitsios, I., Filippidis, G. The development of an image processing algorithm for the precise monitoring of a laser-polymer interaction via third harmonic generation microscopy measurements (2013) Laser Physics, 23 (12), art. no. 126005.
10. **Tserevelakis, G.J.**, Megalou, E.V., Filippidis, G., Petanidou, B., Fotakis, C., Tavernarakis, N. Label-free imaging of lipid depositions in C. elegans using third-harmonic generation microscopy (2014) PLoS ONE, 9 (1), art. no. e84431.
11. Filippidis, G., **Tserevelakis, G.J.**, Selimis, A., Fotakis, C. Nonlinear imaging techniques as non-destructive, high-resolution diagnostic tools for cultural heritage studies (2014) Applied Physics A: Materials Science and Processing, 118 (2), pp. 417-423.
12. **Tserevelakis, G.J.**, Soliman, D., Omar, M., Ntziachristos, V. Hybrid multiphoton and optoacoustic microscope (2014) Optics Letters, 39 (7), pp. 1819-1822.
13. Ghazaryan, A., Omar, M., **Tserevelakis, G.J.**, Ntziachristos, V. Optoacoustic detection of tissue glycation (2015) Biomedical Optics Express, 6 (9), pp. 3149-3156.

14. Soliman, D.*, **Tserevelakis, G.J.***, Omar, M., Ntziachristos, V. Combining microscopy with mesoscopy using optical and optoacoustic label-free modes (2015) Scientific Reports, DOI: 10.1038/srep12902.
15. **Tserevelakis, G. J.**, Tsagkaraki, M., Zacharakis, G. Hybrid photoacoustic and optical imaging of pigments in vegetative tissues (2016) Journal of Microscopy, 263: 300–306. doi:10.1111/jmi.12396.
16. Kyvelidou, C., Sotiriou, D., Antonopoulou, T., Tsagkaraki, M., **Tserevelakis, G.J.**, Filippidis, G., Athanassakis I. L-Carnitine affects preimplantation embryo development toward infertility in mice (2016) Reproduction 152 (4) 283-291, doi: 10.1530/REP-16-0290.
17. **Tserevelakis, G.J.**, Vrouvaki, I., Siozos, P., Melessanaki, K., Hatzigiannakis, K., Fotakis, C., Zacharakis, G. Photoacoustic imaging reveals hidden underdrawings in paintings (2017) Scientific Reports, 7 (1), art. no. 747,.
18. **Tserevelakis, G.J.**, Avtzi, S., Tsilimbaris, M.K., Zacharakis, G. Delineating the anatomy of the ciliary body using hybrid optical and photoacoustic imaging (2017) Journal of Biomedical Optics, 22 (6), art. no. 060501,.
19. **Tserevelakis, G.J.**, Tsagkaraki, M., Tsilimbaris, M.K., Plainis, S., Zacharakis, G. Photoacoustic imaging methodology for the optical characterization of contact lenses (2017) Optics Letters, 42 (20), pp. 4111-4114.
20. **Tserevelakis, G.J.**, Dal Fovo, A., Melessanaki, K., Fontana, R., Zacharakis, G. Photoacoustic signal attenuation analysis for the assessment of thin layers thickness in paintings (2018) Journal of Applied Physics, 123 (12), art. no. 123102.
21. **Tserevelakis, G.J.**, Pozo-Antonio, J.S., Siozos, P., Rivas, T., Pouli, P., Zacharakis, G. On-line photoacoustic monitoring of laser cleaning on stone: Evaluation of cleaning effectiveness and detection of potential damage to the substrate (2019) Journal of Cultural Heritage, 35, pp. 108-115.
22. **Tserevelakis, G.J.**, Tsagkaraki, M., Siozos, P., Zacharakis, G. Uncovering the hidden content of layered documents by means of photoacoustic imaging (2019) Strain, 55 (2), art. no. e12289.
23. Kellnberger, S.*, Soliman, D.*, **Tserevelakis, G.J.***, Seeger, M., Yang, H., Karlas, A., Prade, L., Omar, M., Ntziachristos, V. Optoacoustic microscopy at multiple discrete frequencies (2018) Light: Science and Applications, 7 (1), art. no. 109.
24. Dal Fovo, A.*, **Tserevelakis, G.J.***, Papanikolaou, A., Zacharakis, G., Fontana, R. Combined photoacoustic imaging to delineate the internal structure of paintings (2019) Optics Letters, 44 (4), pp. 919-922.
25. **Tserevelakis, G.J.**, Tsafas, V., Melessanaki, K., Zacharakis, G., Filippidis, G. Combined multiphoton fluorescence microscopy and photoacoustic imaging for stratigraphic analysis of paintings (2019) Optics Letters, 44 (5), pp. 1154-1157.
26. **Tserevelakis, G.J.**, Siozos, P., Papanikolaou, A., Melessanaki, K., Zacharakis, G. Non-invasive photoacoustic detection of hidden underdrawings in paintings using air-coupled transducers (2019) Ultrasonics, 98, pp. 94-98.

27. Papanikolaou A., **Tserevelakis G.J.***, Melessanaki K., Fotakis C., Zacharakis G., Pouli P., Development of a hybrid photoacoustic and optical monitoring system for the study of laser ablation processes upon the removal of encrustation from stonework (2020) Opto-Electronic Advances, 3, 19003.
28. **Tserevelakis, G.J.**, Pouli, P., Zacharakis, G., Listening to laser light interactions with objects of art: a novel photoacoustic approach for diagnosis and monitoring of laser cleaning interventions (2020) Heritage Science, 8 (1), art. no. 98.
29. **Tserevelakis, G.J.**, Mavrakis, K.G., Pantazopoulou, D., Lagoudaki, E., Detorakis, E., Zacharakis, G. Hybrid autofluorescence and photoacoustic label-free microscopy for the investigation and identification of malignancies in ocular biopsies (2020) Optics Letters, 45 (20), pp. 5748-5751.
30. Dal Fovo A., **Tserevelakis G.J.**, Klironomou E., Zacharakis G., Fontana R., First combined application of photoacoustic and optical techniques to the study of an historical oil painting (2021) European Physics Journal Plus, 136 (7), art. no. 757.
31. Orfanakis M., **Tserevelakis G.J.**, Zacharakis G., A cost-efficient multiwavelength LED-based system for quantitative photoacoustic measurements (2021) Sensors, 21 (14), art. no. 4888.
32. **Tserevelakis G.J.**, Mavrakis K.G., Kakakios N., Zacharakis G., Full image reconstruction in frequency-domain photoacoustic microscopy by means of a low-cost I/Q demodulator (2021) Optics Letters, 46 (19), pp. 4718 – 4721.
33. **Tserevelakis G.J.**, Chaban A., Klironomou E., Striova J., Zacharakis G., Revealing hidden features in multilayered artworks by means of an epi-illumination photoacoustic imaging system (2021) Journal of imaging, 7 (9), art. no. 183.
34. Chaban A., **Tserevelakis G.J.**, Klironomou E., Fontana R., Zacharakis G., Striova J., Revealing underdrawings in wall paintings of complex stratigraphy with a novel reflectance photoacoustic imaging prototype (2021) Journal of Imaging, 7 (12), art. no. 250.
35. **Tserevelakis G.J.**, Pavlidis M., Samaras A., Barmparis G., Mavrakis K.G., Draganidis G., Oikonomou A., Fanouraki E., Tsironis G.P., Zacharakis G., Hybrid confocal fluorescence and photoacoustic microscopy for the label-free investigation of melanin accumulation in fish scales (2022) Scientific Reports, 12, 7173.
36. **Tserevelakis G.J.**, Zacharakis G., High precision photoacoustic interferometer for the determination of the speed of sound in liquid media (2022) Optics Express, 30, pp. 28559-28568.
37. Chaban A., **Tserevelakis G.J.**, Klironomou E., Fontana R., Zacharakis G., Striova J., Agar gel as non-invasive coupling medium for reflectance photoacoustic (PA) imaging: first experimental results on wall painting mock-ups (2022) Journal of imaging, 8(9), art. no. 235.
38. **Tserevelakis G.J.**, Velentza S., Liaskas I., Archontidis T., Pavlopoulos A., Zacharakis G., Imaging *Parhyale hawaiensis* embryogenesis with frequency

domain photoacoustic microscopy: A novel tool in developmental biology (2022) Journal of Biophotonics 15 (12), e202200202.

39. Filippidis G., **Tserevelakis G.J.**, Mari M., Zacharakis G., Fotakis C., Emerging photonic technologies for cultural heritage studies: the examples of non-linear optical microscopy and photoacoustic imaging (2022) Applied Physics A 128 (11), 982.
40. Pisu F.A., Chiriu D., Klironomou E., Zacharakis G., **Tserevelakis G.J.**, Stratigraphy of Fresco Paintings: A New Approach with Photoacoustic and SORS Imaging (2023) Journal of Imaging 9 (1), 16.
41. **Tserevelakis G.J.**, Tekonaki E., Kalogeridi M., Liaskas I., Pavlopoulos A., Zacharakis G., Hybrid Fluorescence and Frequency-Domain Photoacoustic Microscopy for Imaging Development of *Parhyale hawaiensis* Embryos (2023) Photonics 10 (3), 264.
42. **Tserevelakis G.J.**, Barmparis G.D., Kokosalis N., Giosa E.S., Pavlopoulos A., Tsironis G.P., Zacharakis G., Deep learning-assisted frequency-domain photoacoustic microscopy (2023) Optics Letters 48 (10), 2720-2723.
43. Dimitroulaki E., **Tserevelakis G.J.**, Melessanaki K., Zacharakis G., Pouli P., Photoacoustic real-time monitoring of UV laser ablation of aged varnish coatings on heritage objects (2023) Journal of Cultural Heritage 63, 230-239.
44. **Tserevelakis G.J.**, Theocharis A., Spyropoulou S., Trantas E., Goumas D., Ververidis F., Zacharakis G., Hybrid Autofluorescence and Optoacoustic Microscopy for the Label-Free, Early and Rapid Detection of Pathogenic Infections in Vegetative Tissues (2023) Journal of Imaging 9 (9), 176.
45. **Tserevelakis G.J.**, Astrinakis C., Zacharakis G., Optoacoustic interferometric characterization system (OPTICS) for the evaluation of fuel quality through speed of sound measurements (2024) Ultrasonics, 139, art. no. 107291.
46. Mylonakis M.[*], **Tserevelakis G.J.**[*], Vlachos G., Fanouraki E., Pavlopoulos A., Pavlidis M., Zacharakis G. Bimodal optical and optoacoustic multiview microscope in the frequency-domain (2024) Optics Letters, 49 (3), pp. 462 – 465.
47. **Tserevelakis G.J.**, Pirgianaki E., Melessanaki K., Zacharakis G., Fotakis C. Non-invasive optoacoustic imaging for in-depth cultural heritage diagnostics (2024) Photonics, 11 (10), 902.
48. Kalitsounakis P., Zacharakis G., **Tserevelakis G.J.** Towards affordable biomedical imaging: Recent advances in low-cost, high-resolution optoacoustic microscopy (2025) Journal of Microscopy, 298 (1), pp. 3–9.
49. Barmparis G.D., Raikidis A.-N., Melessanaki K., Tsironis G.P., **Tserevelakis G.J.**, Pouli P. Machine learning assisted real-time acoustic monitoring of laser cleaning in Heritage conservation (2025) npj Heritage Science, 13 (1), 628.
50. **Tserevelakis G.J.** Sub-Diffraction Photoacoustic Microscopy Enabled by a Novel Phase-Shifted Excitation Strategy: A Numerical Study (2026) Sensors, 26 (2), 498.

51. Pirgianaki E., Kokla V., Argyropoulos V., Fotakis C., **Tserevelakis G.J.** Uncovering the spectral signatures of historical ink families using dual-wavelength photoacoustic imaging (2026) The European Physical Journal Plus, 141 (1), 93.
52. **Tserevelakis G.J.**, Kazasi E., Pavlopoulos A., Zacharakis G. Uncovering the Dynamics of *Parhyale hawaiensis* Embryogenesis With In Vivo Hybrid Photoacoustic and Fluorescence Imaging (2026) Microscopy and Microanalysis, 32 (3), ozag023.
53. Pirgianaki E., Mari M., Melessanaki K., Giakoumaki A., Fotakis C., Filippidis G., **Tserevelakis G.J.** Correlative photoacoustic and nonlinear microscopy measurements reveal ageing signatures in multilayered paint systems (2026) Journal of Physics: Photonics, 8 (3), 035045.
54. Kyriakou E.*, **Tserevelakis G.J.***, Terzaki K., Tavlas P., Apostolidou C.P., Mavrikos S., Grigoropoulos C.P., Mitraki A., Farsari M., Zacharakis G. Hybrid confocal fluorescence and photoacoustic microscopy for in-depth and non-invasive imaging of biomolecule-functionalized 3D scaffolds (2026) Journal of Biophotonics, Accepted for publication.
55. Orfanakis M., **Tserevelakis G.J.**, Zacharakis G. Compact LED-based optoacoustic sensor for real-time monitoring of vascular biomarkers *in vivo* (2026) npj Imaging, Under review.
56. Mylonakis M., Marakis E., **Tserevelakis G.J.**, Zacharopoulos A., Tampakaki M., Manne I., Pasparaki A., Tavernarakis N., Papazoglou D.G., Zacharakis G. Anisotropy enables advanced light sheet microscopy with opaque lenses (2025) arXiv preprint, arXiv:2509.12840.

*Equal contributors

PEER-REVIEWED CONFERENCE PAPERS

1. Selimis, A., Vounisiou, P., **Tserevelakis, G.J.**, Melessanaki, K., Pouli, P., Filippidis, G., Beltsios, C., Georgiou, S., Fotakis, C. In-depth assessment of modifications induced during the laser cleaning of modern paintings (2009) Proceedings of SPIE – The International Society for Optical Engineering, 7391, art. no. 73910U.
2. Aviles-Espinosa, R., **Tserevelakis, G.J.**, Santos, S.I.C.O., Filippidis, G., Krmpot, A.J., Vlachos, M., Tavernarakis, N., Brodschelm, A., Kaenders,W., Artigas, D., Loza-Alvarez, P. Cell division stage in C. elegans imaged using third harmonic generation microscopy (2010) Biomedical Optics, OSA Technical Digest (Optical Society of America).
3. Soliman, D.*, **Tserevelakis, G.J.***, Omar, M., Ntziachristos, V. Hybrid label-free multiphoton and optoacoustic microscopy (MPOM) (2015) Proc. SPIE 9539, Opto-Acoustic Methods and Applications in Biophotonics II, 953908, doi:10.1117/12.2183619.

4. Soliman, D.*, **Tserevelakis, G.J.***, Omar, M., Ntziachristos, V. Combined label-free optical and optoacoustic imaging of model organisms at mesoscopy and microscopy resolutions (2016) Proc. SPIE 9708, Photons Plus Ultrasound: Imaging and Sensing 2016, 97083B, doi:10.1117/12.2208861.
5. **Tserevelakis, G.J.**, Mavrakis, K.G., Pantazopoulou D., Karamouzi E., Avtzi S., Tsilimbaris M.K., Lagoudaki E., Detorakis E., Zacharakis G. Combined photoacoustic and fluorescence label-free microscopy for the ex vivo investigation of ocular tissues (2019) Proc. SPIE 11077, Opto-Acoustic Methods and Applications in Biophotonics IV; 110771C 2019, doi: 10.1117/12.2526580.
6. Orfanakis M., **Tserevelakis G.J.**, Zacharakis G. A low-cost multiwavelength time-domain LED-based optoacoustic system for unmixing absorbers (2021) Progress in Biomedical Optics and Imaging - Proceedings of SPIE, 11923, art. no. 119230V.
7. Mari M., Pirgianaki E., Melessanaki K., Filippidis G., **Tserevelakis G.J.**, Fotakis C. Non-invasive optoacoustic and nonlinear microscopy techniques reveal in-depth aging of CH objects (2025) Proceedings of SPIE, Optics for Arts, Architecture, and Archaeology (O3A) X, 13569, 1356914.

*Equal contributors

BOOK CHAPTERS

Kyvelidou, C., **Tserevelakis, G.J.**, Vardaki, K., Filippidis, G., Ranella, A., Fotakis, C., Athanassakis, I. Qualification and Quantification of Pre-Implantation Embryo Health (2013) Advances in Medicine and Biology Volume 65, ISBN: 978-1-62618-298-1, Nova Science Publishers Inc.

PATENTS

I. Athanassakis, G. Filippidis**, G.J. Tserevelakis**, C. Kyvelidou, A. Ranela, C. Fotakis Use of nonlinear imaging techniques to evaluate pre-implantation embryo health and promote pregnancy outcome Application Number 20110100030 (Greek patent).

PRESENTATIONS

1. Cell division stage in C. elegans imaged using third harmonic generation microscopy (poster presentation) International summer school in ultrafast nonlinear optics 2010, Heriot-Watt University, Edinburgh, Scotland (2010).
2. Femtosecond laser nanosurgery experiments on HeLa cancer cells (poster presentation) Annual meeting of Photonics 4 life, FORTH, Heraklion, Greece (2011).

3. Imaging C. Elegans embryogenesis by third harmonic generation microscopy (oral presentation), International Student Workshop on Laser Applications 2011, Bran, Romania (2011).
4. Hybrid photoacoustic and confocal laser scanning microscopy on the investigation of ciliary body anatomy (oral presentation), 2nd Imaging Technology Summer Workshop of the ESMI- TOPIM TECH, Chania, Greece (2017).
5. Combined photoacoustic and optical microscopy for the detailed description of ciliary body anatomy (oral presentation), PHOTONICA Conference, Belgrade, Serbia (2017).
6. Optical resolution photoacoustic microscopy for the study of craniosynostosis in mouse models (poster presentation), European Molecular Imaging Meeting, San Sebastian, Spain (2018).
7. Listening to laser light interactions with objects of art: A novel photoacoustic diagnosis approach (oral presentation), Stavros Niarchos Foundation – FORTH seminar, Heraklion, Greece (2018).
8. Photoacoustic imaging in Cultural Heritage diagnostics (oral presentation), OPTO-CH workshop, Heraklion, Greece (2018).
9. Combined photoacoustic and fluorescence label-free microscopy for the *ex vivo* investigation of ocular tissues (poster presentation), SPIE ECBO, Munich, Germany (2019).
10. Recent advances in photoacoustic diagnosis in Heritage Science; Air-coupled transducers reveal non-invasively hidden underdrawings in paintings (poster presentation), TECHNART, Bruges, Belgium (2019).
11. Optical resolution photoacoustic microscopy for the study of craniosynostosis in mouse models (poster presentation), TOPIM TECH 2019, Chania, Greece (2019).
12. Hybrid photoacoustic and fluorescence microscopy for the label-free investigation of melanin accumulation in fish scales (poster presentation), European Molecular Imaging Meeting – EMIM 2020, Virtual edition (2020).
13. Photoacoustic imaging: Listening to laser light interactions with matter (invited speaker), PHOTONICA Conference, Belgrade, Serbia (2021).
14. Photoacoustic imaging: Listening to laser light interactions with matter, online photonics by HPhos, virtual webinar (2021).
15. Listening to laser light interactions with objects of art: A novel photoacoustic diagnostic approach, IMAGING CULTURAL HERITAGE: SPACE, AIR, SEA AND SUBSURFACE – 1st ARCHERS WORKSHOP, Virtual meeting (2021).
16. Hybrid photoacoustic and autofluorescence microscopy for the label-free investigation of pathogenic infections in vegetative tissues (poster presentation), European Molecular Imaging Meeting – EMIM 2022, Thessaloniki, Greece (2022).

17. Full image reconstruction in frequency-domain photoacoustic microscopy using a low-cost I/Q demodulator (oral presentation), European Molecular Imaging Meeting – EMIM 2022, Thessaloniki, Greece (2022).
18. Frequency domain photoacoustic microscopy for the label-free monitoring of *Parhyale hawaiensis* embryogenesis (poster presentation), European Molecular Imaging Meeting – EMIM 2023, Salzburg, Germany (2023).
19. Revealing the invisible (oral presentation), TEDx University of Crete, Heraklion Crete, Greece (2025)
20. Looking and Listening to Light: Recent Advances in Hybrid Optical and Photoacoustic Biomedical Microscopy, online web-seminar ICTER (2025).
21. Hybrid fluorescence and frequency-domain optoacoustic multiview microscope (poster presentation), European Molecular Imaging Meeting – EMIM 2025, Bilbao, Spain (2025).

TEACHING EXPERIENCE

1. Lecturer at the Biology Department of the University of Crete since 2018 for the undergraduate courses: a) "Introduction to biomedical imaging techniques" (Fall semester), b) Physical Chemistry (Spring semester). "Introduction to biomedical imaging techniques" course was introduced for the first time in 2018 (~250 slides) to cover the state-of-the-art imaging technologies for biomedical applications. Furthermore, in 2019, the "Physical Chemistry" course lectures' material (~237 slides) was fully redesigned.
2. Lecturer of "Advanced Microscopy" course in "Biomedical Engineering" MSc program (University of Crete, Technical University of Crete, FORTH) during the 3rd trimester of biomedical imaging module since 2021.
3. Participation as lecturer in "Immunobiology" MSc program (University of Crete, Department of Biology) since 2025.
4. Lecturer in the 2nd Biophotonics and Molecular Imaging Summer School, Heraklion Crete, Greece (27/7 – 31/7/2015).
5. Laboratory instructor of the undergraduate course "Laboratory of laser and modern optics", Department of Physics, University of Crete (2009-2013, 2015-2024).

SUPERVISORY EXPERIENCE

1. "Femtosecond laser nanosurgery of subcellular structures in HeLa cells by employing Third Harmonic Generation imaging modality as diagnostic tool", E. Gavgiotaki, Diploma Thesis, Physics Department, University of Crete, 2011 (scientific advisor).
2. "Third Harmonic Generation imaging as a diagnostic tool for the pre-implantation mouse embryo development", A. Kleovoulou, Diploma Thesis, Physics Department, University of Crete, 2011 (scientific advisor).

3. "Identification of sub-cellular structures in *C. Elegans* nematode using Third Harmonic Generation microscopy", B. Petanidou, Diploma Thesis, Physics Department, University of Crete, 2013 (scientific advisor).
4. "Applying photoacoustic microscopy for the detection of underdrawings in paintings", I. Vrouvaki, Diploma Thesis, Chemistry Department, University of Crete, 2016 (scientific advisor).
5. "Structural evaluation of animal ocular models by means of photoacoustic microscopy", S. Avtzi, Master Thesis, Medical School, University of Crete, 2016 (member of the scientific supervision committee).
6. "A photoacoustic imaging methodology for the characterization of contact lenses", M. Tsagkaraki, Master Thesis, Medical School, University of Crete, 2017 (member of the scientific supervision committee).
7. "Exploitation of non-linear effects for the discrimination of absorbers in optical resolution photoacoustic microscopy using single wavelength excitation", K. Lemonaki, Master Thesis, Physics Department, University of Crete, 2017 (scientific advisor).
8. "Hybrid photoacoustic and fluorescence microscopy for in-vivo observations", A. Ntalopoulos, Master Thesis, Physics Department, University of Crete, 2018 (scientific advisor).
9. "Development of a photoacoustic monitoring system for the study of laser ablation processes upon the removal of encrustation from stonework", A. Papanikolaou, Master Thesis, Physics Department, University of Crete, 2018, (scientific advisor).
10. "Investigation of ocular melanoma biopsy specimens using combined photoacoustic and optical microscopy" E. Karamouzi, Diploma Thesis, Chemistry Department, University of Crete, 2020 (scientific advisor).
11. "Development of a multiparametric label-free imaging system for the early diagnosis of neurodegenerative disorders through the ocular cavity", K.G. Mavrakis, PhD Thesis, Department of materials science and technology, University of Crete, 2018-ongoing (scientific advisor).
12. "Development of spectroscopic and optoacoustic techniques for biomarker monitoring in the infrared", M. Orfanakis, PhD Thesis, Medical School, University of Crete, 2018-ongoing (scientific advisor).
13. "Hybrid photoacoustic imaging and confocal fluorescence microscopy for the investigation and quantification of melanin in fish scales", G. Draganidis, Diploma Thesis, Physics Department, University of Crete, 2021 (scientific advisor).
14. "Novel methods for melanin quantification and the determination of skin color of commercially important fish species using Hybrid Microscopy and Machine Learning", A. Oikonomou, Diploma Thesis, Physics Department, University of Crete, 2021 (scientific advisor).
15. "Detecting hidden sketch drawings and fresco layers using a novel, photoacoustic, diagnostic approach", E. Klironomou, Diploma Thesis, Physics Department, University of Crete, 2021 (scientific advisor).

16. “Full image reconstruction in frequency-domain photoacoustic microscopy by means of a low-cost I/Q demodulator”, N. Kakakios, Diploma Thesis, Physics Department, University of Crete, 2022 (scientific advisor).
17. “Ex vivo hybrid imaging of human brain cancer”, A. Katsoli, Diploma Thesis, Biology Department, University of Crete, 2021 (scientific advisor).
18. “Monitoring of varnish cleaning using the photoacoustic effect”, E. Dimitroulaki, Master Thesis, Materials Science Department, University of Crete, 2022 (scientific advisor).
19. “Photoacoustic interferometry for the measurement of the speed of sound in liquid media”, M. Mavroforaki, Diploma Thesis, Materials Science Department, University of Crete, 2022-ongoing (scientific advisor).
20. “Low-cost photoacoustic microscopy for the monitoring of embryogenesis stages in *Parhyale hawaiensis*”, S. Velentza, Diploma Thesis, Physics Department, University of Crete, 2022 (scientific advisor).
21. “Photoacoustic microscopy for the imaging of Drosophila melanogaster and Tribolium castaneum model organisms”, E. Giosa, Diploma Thesis, Physics Department, University of Crete, 2022 (scientific advisor).
22. “Multi-wavelength frequency domain photoacoustic microscopy”, G. Asimakopoulos, Diploma Thesis, Physics Department, University of Crete, 2022 (scientific advisor).
23. “Hybrid confocal and frequency domain photoacoustic microscopy”, E. Tekonaki, Diploma Thesis, Physics Department, University of Crete, 2022 (scientific advisor).
24. “Hybrid confocal and optical resolution photoacoustic imaging for the label-free monitoring of embryogenesis stages in *Parhyale hawaiensis*”, G. Zouraros, Diploma Thesis, Physics Department, University of Crete, 2022 (scientific advisor).
25. “Investigation of bacterial infections in vegetative tissues using label-free multiparametric microscopy”, S. Spyropoulou, Diploma Thesis, Physics Department, University of Crete, 2022-ongoing (scientific advisor).
26. “Development of a novel photoacoustic imaging prototype for the non-destructive in-depth investigation of cultural heritage items”, E. Klironomou, Master Thesis, Physics Department, University of Crete, 2023 (scientific advisor).
27. “Deep learning enhanced frequency domain photoacoustic microscopy”, N. Kokosalis, Diploma Thesis, Physics Department, University of Crete, 2023-ongoing (scientific advisor).
28. “Detection of fuel adulteration through optoacoustic interferometry measurements”, C. Astrinakis, Diploma Thesis, Physics Department, University of Crete, 2024 (scientific advisor).
29. “Bimodal optical and optoacoustic multiview microscopy”, D. Chalkidi, Diploma Thesis, Physics Department, University of Crete, 2025 (scientific advisor).

30. "Non- invasive photoacoustic imaging for in- depth cultural heritage diagnostics", E. Pirgianaki, Diploma Thesis, Physics Department, University of Crete, 2024 (scientific advisor).
31. "Development of a triple hybrid microscopy system through the detection of fluorescence radiation, optoacoustic waves and Raman scattering", S. Vlassis, Diploma Thesis, Physics Department, University of Crete, 2025 (scientific advisor).
32. "Monitoring of *Parhyale hawaiensis* embryogenesis by means of hybrid optical and photoacoustic imaging", E. Kazasi, Diploma Thesis, Biology Department, University of Crete, 2025 (scientific advisor).
33. "Hybrid confocal fluorescence and photoacoustic microscopy for in-depth and non-invasive imaging of biomolecule-functionalized 3D scaffolds", P. Tavlas, Diploma Thesis, Physics Department, University of Crete, 2025 (scientific advisor).
34. "Characterization and Evaluation of a Prototype Total Internal Reflection Fluorescence (TIRF) Microscope", C. Vasilaki, Diploma Thesis, Physics Department, University of Crete, 2026 (scientific advisor).
35. "Non-Invasive Dual-Wavelength Photoacoustic Diagnostics for Sensitive In-Depth Detection of Ageing Signatures in Cultural Heritage Materials", E. Pirgianaki, Master Thesis, Materials Science & Engineering Department, ongoing (supervisor).

REVIEWING ACTIVITIES

I have served as a referee in the following peer-reviewed journals: Micron, Journal of Biomedical Optics, Biomedical Optics Express, Optics Letters, Applied Physics A, Ultrasonics, International Journal of Thermophysics, Optical and Quantum Electronics, Sensing and Imaging, Bone, Carbon Letters, Journal of Cultural Heritage, Optical Engineering, Scientific Reports, Photoacoustics, Photonics, npj-Imaging, International Journal of Biological Macromolecules, International Journal of Molecular Sciences and Laser Physics, Ultrasonics, ACS polymers, Microscopy and microanalysis, npj Imaging, AVS JVSTA. I have additionally served: a) as an external reviewer for the evaluation of ERC Consolidator grant proposals, b) as a reviewer for the Program for excellent projects of young researchers (PROMIS) funded by the Science Fund of the Republic of Serbia.