

**LASER APPLICATIONS IN CULTURAL HERITAGE SCIENCE & CONSERVATION****LIST OF PUBLICATIONS**

## ARTICLES IN SCIENTIFIC JOURNALS

1. "Interferometric Quantification of the Impact of Relative Humidity Variations on Cultural Heritage", V. Tornari, *Heritage*, 6, 177–198 (2023); [doi.org/10.3390/heritage6010009](https://doi.org/10.3390/heritage6010009)
2. "Development of a methodology for the characterization and assessment of biodeteriogens on archaeological surfaces by use of a portable LED-induced fluorescence instrument", A. Giakoumaki, P. Siozos, A. Filippidis, I. Pyrri, D. Anglos, P. Pouli, *Heritage Science* 10, 204 (2022). [doi.org/10.1186/s40494-022-00827-x](https://doi.org/10.1186/s40494-022-00827-x)
3. "Laser-based, non-invasive monitoring and exponential analysis of the mechanical behaviour of materials with structural inhomogeneities in heat transfer, towards thermal equilibrium", K. Kosma, M. Andrianakis, V. Tornari, *Appl. Phys. A* 128, 879 (2022); [doi.org/10.1007/s00339-022-05968-1](https://doi.org/10.1007/s00339-022-05968-1)
4. "Study of Crack Growth of Transparent Materials Subjected to Laser Irradiation by Digital Holography", W. Zhou, Y. Liu, Z. Chen, Y. Chen, H. Zhang, Y. Yu, V. Tornari, *Appl. Sci.* 12, 7799 (2022). [doi.org/10.3390/app12157799](https://doi.org/10.3390/app12157799)
5. "Architectural Polychromy on the Athenian Acropolis: An In Situ Non-Invasive Analytical Investigation of the Colour Remains", E. Aggelakopoulou, S. Sotiropoulou, G. Karagiannis, *Heritage*, 5, 756-787 (2022); [doi:10.3390/heritage5020042](https://doi.org/10.3390/heritage5020042)
6. "A symmetry concept and significance of fringe patterns as a direct diagnostic tool in artwork conservation", V. Tornari, *Light: Advanced Manufacturing*, 3 (18), 1-22, (2022); [doi:10.37188/lam.2022.018](https://doi.org/10.37188/lam.2022.018)
7. "Determining optimum irradiation conditions for the analysis of vermilion by Raman spectroscopy", A. Philippidis, A. Mikallou, D. Anglos, *Eur. Phys. J. Plus* **136**, 1194 (2021); [doi:10.1140/epjp/s13360-021-02186-1](https://doi.org/10.1140/epjp/s13360-021-02186-1)
8. "Revealing Underdrawings in Wall Paintings of Complex Stratigraphy with a Novel Reflectance Photoacoustic Imaging Prototype", A. Chaban, G.J. Tserevelakis, E. Klironomou, R. Fontana, G. Zacharakis, J. Striova, *Journal of Imaging*, 7(12):250 (2021); [doi:10.3390/jimaging7120250](https://doi.org/10.3390/jimaging7120250)
9. "Laser-induced fluorescence as a non-invasive tool to monitor laser-assisted thinning of aged varnish layers on paintings: fundamental issues and critical thresholds", O. Kokkinaki, E. Dimitroulaki, K. Melessanaki, D. Anglos, P. Pouli, *Eur. Phys. J. Plus* 136, 938 (2021); [doi:10.1140/epjp/s13360-021-01929-4](https://doi.org/10.1140/epjp/s13360-021-01929-4)
10. "Revealing Hidden Features in Multilayered Artworks by Means of an Epi-Illumination Photoacoustic Imaging System", G.J. Tserevelakis, A. Chaban, E. Klironomou, K. Melessanaki, J. Striova, G. Zacharakis, *J. Imaging*, 7, 183 (2021); [doi:10.3390/jimaging7090183](https://doi.org/10.3390/jimaging7090183)
11. "Review and New Evidence on the Molluscan Purple Pigment Used in the Early Late Bronze Age Aegean Wall Paintings", S. Sotiropoulou, I. Karapanagiotis, K. S. Andrikopoulos, T. Marketou, K. Birtacha, M. Marthari, *Heritage*, 4 (1), 171-187 (2021); [doi:10.3390/heritage4010010](https://doi.org/10.3390/heritage4010010)
12. "Application of laser-induced breakdown spectroscopy and neural networks on archaeological human bones for the discrimination of distinct individuals", P. Siozos, N. Hausmann, D. Anglos, *Journal of Archaeological Science: Reports*, 32, 102769 (2021); [doi:10.1016/j.jasrep.2020.102769](https://doi.org/10.1016/j.jasrep.2020.102769)
13. "Listening to laser light interactions with objects of art: a novel photoacoustic approach for diagnosis and monitoring of laser cleaning interventions", G. J. Tserevelakis, P. Pouli, G. Zacharakis, *Heritage Science* 8, 98 (2020). [doi:10.1186/s40494-020-00440-w](https://doi.org/10.1186/s40494-020-00440-w)

14. "Materials analyses of stone artifacts from the EBA to MBA Minoan Tholos tomb P at Porti, Greece (Crete), by means of Raman spectroscopy: Results and a critical assessment of the method" G. Flouda, A. Philippidis, A. Mikallou, D. Anglos, *Journal of Archaeological Science: Reports*, 32 (2020), 102436; [doi.org/10.1016/j.jasrep.2020.102436](https://doi.org/10.1016/j.jasrep.2020.102436)
15. "Development of a hybrid photoacoustic and optical monitoring system for the study of laser ablation processes upon the removal of encrustation from stonework", A. Papanikolaou, G.J. Tserevelakis, K. Melessanaki, C. Fotakis, G. Zacharakis, P. Pouli, *Opto-Electronic Advances* 3, 2, 190037-1 (2020); [doi:10.29026/oea.2020.190037](https://doi.org/10.29026/oea.2020.190037)
16. "Non-invasive photoacoustic detection of hidden underdrawings in paintings using air-coupled transducers", G. J. Tserevelakis, P. Siozos, A. Papanikolaou, K. Melessanaki, G. Zacharakis, *Ultrasonics* 98, 94-98 (2019); [doi:10.1016/j.ultras.2019.06.008](https://doi.org/10.1016/j.ultras.2019.06.008)
17. "Uncovering the hidden content of layered documents by means of photoacoustic imaging", G. J. Tserevelakis, M. Tsagkaraki, P. Siozos, G. Zacharakis, *Strain*. 2019 55, e12289 (2019); [doi:10.1111/str.12289](https://doi.org/10.1111/str.12289)
18. "Cleaning of gypsum-rich black crusts on granite using a dual wavelength Q-Switched Nd:YAG laser", J.S. Pozo-Antonio, A Papanikolaou, A. Philippidis, K. Melessanaki, T. Rivas, P. Pouli, *Construction and Building Materials* 226, 721–733 (2019); [doi:10.1016/j.conbuildmat.2019.07.298](https://doi.org/10.1016/j.conbuildmat.2019.07.298)
19. "Laser cleaning of paintings: in situ optimization of operative parameters through non-invasive assessment by optical coherence tomography (OCT), reflection FT-IR spectroscopy and laser induced fluorescence spectroscopy (LIF)", P. Moretti, M. Iwanicka, K. Melessanaki, E. Dimitroulaki, O. Kokkinaki, M. Daugherty, M. Sylwestrzak, P. Pouli, P. Targowski, K.J. van den Berg, L. Cartechini and C. Miliani, *Heritage Science*, 7:44 (2019); [doi:10.1186/s40494-019-0284-8](https://doi.org/10.1186/s40494-019-0284-8)
20. "Combined multiphoton fluorescence microscopy and photoacoustic imaging for stratigraphic analysis of paintings", G.J. Tserevelakis, V. Tsafas, K. Melessanaki, G. Zacharakis, G. Filippidis, *Optics Letters* 44, 1154-1157 (2019); [doi:10.1364/OL.44.001154](https://doi.org/10.1364/OL.44.001154)
21. "Extensive elemental mapping unlocks Mg/Ca ratios as climate proxy in seasonal records of Mediterranean limpets", N. Hausmann, A. L. Prendergast, A. Lemonis, J. Zech, P. Roberts, P. Siozos, D. Anglos, *Scientific Reports* 9, 3698 (2019); [doi:10.1038/s41598-019-39959-9](https://doi.org/10.1038/s41598-019-39959-9)
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23. "On-line photoacoustic monitoring of laser cleaning on stone: Evaluation of cleaning effectiveness and detection of potential damage to the substrate", G.J. Tserevelakis, J.S. Pozo-Antonio, P. Siozos, T. Rivas, P. Pouli, G. Zacharakis, *Journal of Cultural Heritage* 35, 108- 115 (2019), [doi:10.1016/j.culher.2018.05.014](https://doi.org/10.1016/j.culher.2018.05.014)
24. "Introducing the HERACLES Ontology – Semantics for Cultural Heritage Management", T. Hellmund, P. Hertweck, D. Hilbring, J. Mossgraber, G. Alexandrakis, P. Pouli, A. Siatou and G. Padeletti, *Heritage, Special Issue "Cultural Heritage - Materials, Techniques and Knowledge Perspectives on a Common Identity"*, 1, 377–391(2018); [doi:10.3390/heritage1020026](https://doi.org/10.3390/heritage1020026)
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26. "Photoacoustic signal attenuation analysis for the assessment of thin layers thickness in paintings", G. J. Tserevelakis, A. dal Fovo, K. Melessanaki, R. Fontana, and G. Zacharakis, *Journal of Applied Physics* 123, 123102 (2018); [doi :10.1063/1.5022749](https://doi.org/10.1063/1.5022749)
27. "POLYGNOSIS": The development of a Thesaurus in an Educational Web Platform on optical and laser-based investigation methods for Cultural Heritage analysis and diagnosis", N. Platia, M. Chatzidakis, C. Doerr, L. Charami, Ch. Bekiari, K. Melessanaki, K. Hatzigiannakis, P. Pouli, *Heritage Science* (2017) 5:50; [doi:10.1186/s40494-017-0163-0](https://doi.org/10.1186/s40494-017-0163-0)

28. "Portable laser-induced breakdown spectroscopy/diffuse reflectance hybrid spectrometer for analysis of inorganic pigments", P. Siozos, A. Philippidis, D. Anglos, *Spectrochimica Acta Part B* 137, 93-100 (2017); doi:10.1016/j.sab.2017.09.005.
29. "Optical coherence tomography and non-linear microscopy for paintings – A study of the complementary capabilities and laser degradation effects", H. Liang, M. Mari, Chi Shing Cheung, S. Kogou, P. Johnson, G. Filippidis, *Optics Express*, 25, 16, 19640-19653 (2017); doi:10.1364/OE.25.019640.
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33. "Shedding light on the past: optical technologies applied to cultural heritage", D. Anglos, *Heritage Science*, 5:29 (2017); doi: 10.1186/s40494-017-0139-0.
34. "Materials analyses of pyrotechnological objects from LBA Tiryns, Greece, by means of Laser-Induced Breakdown Spectroscopy (LIBS): Results and a critical assessment of the method" A. Brysbaert, P. Siozos, M. Vettters, A. Philippidis and D. Anglos, *Journal of Archaeological Science* 83, 49-61 (2017); doi:10.1016/j.jas.2017.06.007.
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40. "The two-wavelength laser cleaning methodology; Theoretical background and examples from its application on CH objects and monuments with emphasis to the Athens Acropolis Sculptures", P. Pouli, E. Papakonstantinou, K. Frantzikinaki, A. Panou, G. Frantzi, C. Vasiliadis, C. Fotakis, *Heritage Science*, 4:9 (2016); doi: 10.1186/s40494-016-0077-2.
41. "A multi-technique approach, based on mobile/portable laser instruments, for the in-situ pigment characterization of stone sculptures on the island of Crete dating from Venetian and Ottoman period", Z. E. Papiiaka, A. Philippidis, P. Siozos, M. Vakondiou, K. Melessanaki, D. Anglos, submitted to the

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