

## LASER APPLICATIONS IN HERITAGE SCIENCE & CONSERVATION

### LIST OF PUBLICATIONS

#### ARTICLES IN SCIENTIFIC JOURNALS

1. "Applying laser induced breakdown spectroscopy (LIBS) and elemental imaging on marine shells for archaeological and environmental research", N. Hausmann, D. Theodoraki, V. Piñon, P. Siozos, A. Lemonis & D. Anglos. *Scientific Reports* 13, 19812 (2023); [doi.org/10.1038/s41598-023-46453-w](https://doi.org/10.1038/s41598-023-46453-w)
2. "Photoacoustic real-time monitoring of UV laser ablation of aged varnish coatings on heritage objects", E. Dimitroulaki, G. J. Tserevelakis, K. Melessanaki, G. Zacharakis, P. Pouli, *Journal of Cultural Heritage*, 63, 230-239 (2023); [doi.org/10.1016/j.culher.2023.08.006](https://doi.org/10.1016/j.culher.2023.08.006)
3. "Quantification of alloying elements in steel targets: The LIBS 2022 regression contest", E. Képeš, J. Vrábel, P. Siozos, V. Pinon, P. Pavlidis, D. Anglos, T. Chen, L. Sun, G. Lu, D. J. Díaz-Romero, S. Van den Eynde, I. Zaplana, J. Peeters, V. Kaňa, A. Záděra, V. Palleschi, A. De Giacomo, P. Pořízka, J. Kaiser, *Spectrochimica Acta Part B: Atomic Spectroscopy*, 26, 106710 (2023) ISSN 0584-8547; [doi.org/10.1016/j.sab.2023.106710](https://doi.org/10.1016/j.sab.2023.106710)
4. "A combined ND diagnostic investigation by DHSPI, SIRT, NMR, THZ, on Giotto fresco", V. Tornari, M. Andrianakis, S. Duchêne, W. Nowik, D. Brissaud, D. Giovannacci, M. Küppers, C. Rehorn, B. Blümich, G. Ricci, G. Artioli, *Journal of Cultural Heritage*, 63, 206-216 (2023), ISSN 1296-2074; [doi.org/10.1016/j.culher.2023.07.021](https://doi.org/10.1016/j.culher.2023.07.021)
5. "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)
6. "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)
7. "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)
8. "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)
9. "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)
10. "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)
11. "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)
12. "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)
13. "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.

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14. "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)
  15. "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)
  16. "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)
  17. "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)
  18. "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)
  19. "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)
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  23. "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)
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  27. "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)

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