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Publications and Patents

(CITATIONS @WEB OF SCIENCE)

Invited articles- Chapters (peer reviewed)

1. **Eastern Mediterranean Perspectives on eco-conscious, resilient, and sustainable preservation of Museum Collections and Heritage Sites in Greece**, V. Argyropoulos, D. Karolidis, **P. Pouli**, Chapter #22 in “Collections Management as Critical Practice”, Editors Cara Krmpotich and Alice Stevenson, Wiley-Blackwell, 2024, pp. 427-447, London: UCL Press
2. **Laser cleaning on stonework; principles, case studies and future prospects**, **P. Pouli**, Invited Chapter; Springer Nature Switzerland AG 2022 75 F. Gherardi, P. N. Maravelaki (eds.), Conserving Stone Heritage, Cultural Heritage Science, (2022); p. 75-100
3. **Practical issues in laser cleaning of stone and painted artefacts: optimization procedures and side effects**, **P. Pouli**, M. Oujja, M. Castillejo, Applied Physics A 106(2), 447-464 (2012); Citations: 89
4. **Recent studies of laser science in paintings conservation and research**, **P. Pouli**, A. Selimis, S. Georgiou, C. Fotakis, Accounts of Chemical Research, 43(6), 771-781 (2010); Citations: 48

Articles submitted for revision (under review/ in press)

1. ***Laser cleaning of wax-resin lining adhesives from canvas paintings: A multi-wavelength comparative study on technical mock-ups***, Ilaria Pecorelli, Theofania Xanthouli, Sofia Carletti, Kristalia Melessanaki, Grazia De Cesare, Paraskevi Pouli, submitted to J Cultural Heritage, VSI: TECHNART 2025, CULHER-S-25-02535
2. ***Laser-assisted removal of calcium oxalate and albumen patinas from oil paintings: a comparative multi-wavelength study and optimisation of the 248 nm KrF Excimer laser cleaning protocol***, Ilaria Pecorelli, Chiara Cardinali, Evdokia Dimitroulaki, Kristalia Melessanaki, Grazia De Cesare, Paraskevi Pouli, submitted to J Cultural Heritage, VSI: TECHNART 2025

Articles in scientific journals (peer reviewed)

2025

1. **Machine learning assisted real-time acoustic monitoring of laser cleaning in Heritage conservation**, G. D. Barmparis, A.-N. Raikidis, K. Melessanaki, G. P. Tsironis, G. J. Tserevelakis, **P. Pouli**, npj Heritage Science | (2025) 13: 628
2. **TriENA, a portable, hybrid multimode spectrometer combining Diffuse Reflectance, LED-Induced Fluorescence and Laser-Induced Breakdown Spectroscopy for a holistic analysis of materials on monuments and objects of archaeological interest**, Pinon, V.; Giakoumaki, A.; Andrianakis, M.; Hatzigiannakis, K.; Melessanaki, K.; Siozos, P.; Anglos, D.; Pouli, P., Anal. Chem. (2025) 97 (49): 27276–27288
3. **Ageing-induced changes in varnish-coated oil paints: surface and sub-surface multi-technical analysis**, A. Dal Fovo, L. Maestro-Guijarro; P.M. Carmona-Quiroga; R. Fontana; F. Rosi; M. Alunni Cardinali; A. Romani; L. Comez; C.

Riminesi; M. Iwanicka; P. Targowski; M. Kowalska; A. Philippidis; **P. Pouli**; M. Castillejo; M. Oujja, Journal of Cultural Heritage (2025) 76: 263-276

4. [Setting up a methodology for restoring degraded daguerreotypes using UV lasers and atmospheric non-thermal plasma cleaning techniques](#), D. Quintero Balbas, E. Dimitroulaki, K. Melessanaki, B. Cattaneo, A. Cagnini, L. Bartoli, E. Verga Falzacappa, P. Scopece, **P. Pouli**, J. Striova, Journal of Cultural Heritage (2025) 74: 289-299

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5. [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 (2023) 63, VSI: LACONA XIII: 230-239, Citations: 6

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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, 2022, 204. Citations: 5

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7. [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 (2021) 136: 938, Citations: 9

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8. [Listening to laser light interactions with objects of art: a novel photoacoustic approach for diagnosis and monitoring of laser cleaning interventions](#), Tserevelakis, G.J., **Pouli, P.**, Zacharakis, G., Heritage Science, 2020, 8(1): 98, Citations: 22
9. [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 and **P. Pouli**, Opto-Electronic Advances (2020) 3 (2): 190037-1, Citations: 42

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10. [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 (2019) 721–733, Citations: 15
11. [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 (2019) 7:44, Citations: 32
12. [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 (2019) 35: 108-115, Citations: 39

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13. [Introducing the HERACLES Ontology – Semantics for Cultural Heritage Management](#), T. Hellmund, P. Hertweck, D. Hilbring, J. Mossgraber, G. Alexandrakis, **P. Pouli**, A Siatou, G. Padeletti, Heritage, Special Issue “Cultural Heritage - Materials, Techniques and Knowledge Perspectives on a Common Identity” (2018) 1: 377–391; Citations: 19
14. [Laser assisted removal of graffiti from granite: advantages of the simultaneous combination of 2 wavelengths](#), J.S. Pozo Antonio, A. Papanikolaou, K. Melessanaki, T. Rivas, **P. Pouli**, Coatings (2018) 8(4): 124, Citations: 24

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15. ['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 and **P. Pouli**, Heritage Science (2017) **5** (50), [Citations: 9](#)
16. [Nonlinear imaging microscopy for assessing structural and photochemical modifications upon laser removal of dammar varnish on photosensitive substrates](#), M. Oujja, S. Psilodimitrakopoulos, E. Carrasco, M. Sanz, A. Philippidis, A. Selimis, **P. Pouli**, G. Filippidis and M. Castillejo, Physical Chemistry Chemical Physics, 2017, **19**, 22836-22843, [Citations: 23](#)

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18. [Laser assisted removal of dark cement crusts from the mineral gypsum \(selenite\) architectural elements from the peripheral monuments of the archaeological site of Knossos](#), G. Grammatikakis, K.D. Demadis, K. Melessanaki, **P. Pouli**, Studies in Conservation (2015) **60** (S1), S3-S11, [Citations: 10](#)

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19. [Holographic testing of possible mechanical effects of laser cleaning on the structure of model fresco samples](#), Zs. Márton, I. Kisapáti, Á. Török, V. Tornari, E. Bernikola, K. Melessanaki and **P. Pouli**, NDT&E International (2014) **63**: 53-59, [Citations: 8](#)

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21. [Wavelength and pulse duration effects on laser induced changes on raw pigments used in paintings](#), M. Oujja, M. Sanz, E. Rebollar, J. F. Marco, M. Castillejo, **P. Pouli**, S. Kogou, C. Fotakis, Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy (2013) **102**: 7-14, [Citations: 36](#)

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28. [A spectral imaging methodology for determining on-line the optimum cleaning level of stonework](#), V. Papadakis, A. Loukaiti, **P. Pouli**, Journal of Cultural Heritage (2010) **11**(3): 325-328, [Citations: 25](#)

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37. [Nd:YAG Laser Double Wavelength Ablation Of Pollution Encrustation On Marble And Bonding Glues On Duplicated Painting Canvas](#), S. Batishche, A. Englezis, T. Gorovets, A. Kouzmouk, U. Pilipenka, **P. Pouli**, H. Tatur, G. Totou, V. Ukhau, Applied Surface Science **248**(1-4): 264- 269 (2005), [Citations: 6](#)

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39. [Comparative study on the application of the 1st and the 3rd harmonic of a Nd: YAG laser system to clean black encrustation on marble](#), G. Marakis, **P. Pouli**, V. Zafiropoulos, P. Maravelaki-Kalaitzaki, Journal of Cultural Heritage (2003) **4**(S1): 83-91, [Citations: 36](#)
40. [Removal of dye-based ink stains from ivory: Evaluation of cleaning results based on wavelength dependency and laser type](#), O Madden, P Pouli, M Abraham, C Fotakis, Journal of Cultural Heritage (2003) **4**(S1): 98-105, [Citations: 11](#)

41. **Yellowing effect and discoloration of pigments: Experimental and Theoretical studies**, V. Zafiropulos, C. Balas, A. Manousaki, G. Marakis, P. Maravelaki-Kalaitzaki, K. Melesanaki, **P. Pouli**, T. Stratoudaki, S. Klein, J. Hildenhagen, K. Dickmann, B. S. Luk'yanchuk, C. Mujat, A. Dogariu, Journal of Cultural Heritage (2003) **4**(S1): 249-256, Citations: 70
42. **Studies towards a thorough understanding of the laser-induced discoloration mechanisms of medieval pigments**, **P. Pouli**, D.C. Emmony, C.E. Madden, I. Sutherland, Journal of Cultural Heritage (2003) **4**(S1): 271-275, Citations: 46
43. **Laser cleaning of inorganic encrustation on excavated objects: evaluation of the cleaning result by means of multi-spectral imaging**, **P. Pouli**, V. Zafiropulos, C. Balas, Y. Doganis, A. Galanos, Journal of Cultural Heritage (2003) **4**(S1): 338-342, Citations: 18

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CONTRIBUTIONS TO BOOKS AND EDITED VOLUMES

1. **Eastern Mediterranean Perspectives on eco-conscious, resilient, and sustainable preservation of Museum Collections and Heritage Sites in Greece**, V. Argyropoulos, D. Karolidis, **P. Pouli**, Chapter #22 in "Collections Management as Critical Practice", Editors Cara Krmpotich and Alice Stevenson, Wiley-Blackwell, 2024, pp. 427-447, London: UCL Press, <https://doi.org/10.14324/111.9781800087040>
2. **Laser cleaning on stonework; principles, case studies and future prospects**, **P. Pouli**, Invited Chapter #3; Springer Nature Switzerland AG 2022 75 F. Gherardi, P. N. Maravelaki (eds.), Conserving Stone Heritage, Cultural Heritage Science, 2022, p. 75-100
3. **Laser Cleaning**, **P. Pouli**, Invited chapter in *The Encyclopedia of Archaeological Sciences*, Sandra L. López Varela (Ed), 2018,
4. **Une technique prototype du nettoyage au laser pour les sculptures et les monuments de l'Acropole d'Athènes, Grèce**, **P. Pouli**, C. Fotakis, E. Papakonstantinou, A. Frantzikinaki, A. Panou, G. Frantzi, C. Vasiliadis, (in French) Invited chapter in «**Monumental**», Revue scientifique et technique des monuments historiques, Semestriel 2, 2015, 90-92
5. **An Integrated Approach to the Study and Preservation of Paintings Using Laser Light Technology; Diagnosis, Analysis and Cleaning**, **P. Pouli**, K. Melessanaki, V. Tornari, E. Bernikola, G. Filippidis, D. Anglos, C. Fotakis, Invited Chapter in "the Science and Art: The Painting Surface", edited by A. Sgamellotti, B.G. Brunetti, C. Miliani, Royal Society of Chemistry, Chapter 14, 287-313 (2014), <https://doi.org/10.1039/9781839161957-00287>
6. **Laser technology for chemical analysis, structural diagnosis and cleaning of byzantine painted artworks**, **P. Pouli**, In "technology and Informatics in Cultural Heritage; applications on byzantine Icon", ed. N. Miridis, University of Macedonia Press, Chapter 5, 177-222 (2014) (in Greek)
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8. **Combination of ultraviolet and infrared laser pulses for sculpture cleaning: the application of this innovative methodology on the surface of the Acropolis monuments and sculptures**, **P. Pouli**, V Zafiropulos, Invited Chapter 9 in "Study on the restoration of the Parthenon, Volume 7: Study on the cleaning of the West Frieze", Eds. The Greek Ministry of Culture and the Committee for the Conservation of the Acropolis Monuments, Athens 2002 (in Greek) ISBN 960-214-034-8.

CONFERENCE PROCEEDINGS

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1. [CALLOS project: Conservation of Athens antiquities with Laser and Lidar technologies Open to Science and public](#), Pouli, P., Giakoumaki, A., Ampatzioglou, E., Antonopoulou, T., Dellis, S., Bekiari, C., In: Osman, A., Moropoulou, A., Lampropoulos, K. (eds) Advanced Nondestructive and Structural Techniques for Diagnosis, Redesign and Health Monitoring for the Preservation of Cultural Heritage. TMM 2023. Springer Proceedings in Materials, vol 33. Springer, Cham. 53-64
2. [Digital technologies for Heritage Conservation Labs Open to the public. The case of the CALLOS project](#), S. Papida, M. Athanasiadou, K. Petrakis, L. Charami, D. Angelakis, C. Bekiari, K. Melessanaki, P. Pouli, In: Moropoulou, A., Georgopoulos, A., Ioannides, M., Doulamis, A., Lampropoulos, K., Ronchi, A. (eds) Transdisciplinary Multispectral Modeling and Cooperation for the Preservation of Cultural Heritage. TMM_CH 2023. Communications in Computer and Information Science, vol 1889. Springer, Cham. 104-113

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3. [A multi- and interdisciplinary methodological approach for monitoring Cultural Heritage Built Assets: the HERACLES experience](#), A. Siatou, G. Alexandrakis, P. Pouli, A. Curulli, E. Kavoulaki, S. Knezic and G. Padeletti, In: Osman, A., Moropoulou, A. (eds) Advanced Nondestructive and Structural Techniques for Diagnosis, Redesign and Health Monitoring for the Preservation of Cultural Heritage. Springer Proceedings in Materials (2021) vol 16. Springer, Cham., 129-145

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4. [Implementing the HERACLES Ontology - An Ontology as backbone for a Knowledge Base in the Cultural Heritage Protection Domain](#), T. Hellmund, Ph. Hertweck, J. Moßgraber, D. Hilbring, P. Pouli, G. Padeletti, International Journal on Advances in Intelligent Systems, ISSN 1942-2679 vol. 12, no. 3 & 4 (2019): 158-168
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8. [Towards the understanding of the two wavelength laser cleaning in avoiding yellowing on stonework: a micro-Raman and LIBS study](#), A. Papanikolaou, P. Siozos, A. Philippidis, K. Melessanaki, P. Pouli, Lasers in the Conservation of Artworks XI, Proceedings of LACONA XI, P. Targowski, M. Walczak, P. Pouli (Eds.), NCU Press, Torun (2017) 95-104

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