



National Technical University of Athens  
School of Chemical Engineering  
Materials Science and Engineering Section

**SORT CURRICULUM VITAE**

**PROF. MARIA K. KOUI**

**2017**

**Prof. Maria Kouli** has been a member of the Teaching and Research Staff of National Technical University of Athens in the School of Chemical Engineering since 1987 [www.chemeng.ntua.gr](http://www.chemeng.ntua.gr). Nowadays she is a Professor of "Spectroscopic and Non-Destructive Methods and Techniques for the Characterization of Materials" in the Materials Science and Engineering Section.

She holds an MSc in Industrial Chemistry from the University of Bologna (Italy, 1977) and a PhD from the National Technical University of Athens, (Greece, 1984).

In addition to Greek, she speaks two other languages (Italian and English).

She was a visiting professor at the Universities of Bari (1992), Venice (IUAV) (2005-2006) and Cranfield (2015).

She is also a professor at the post-graduate programme: "**Protection of Monuments**" - **Direction "Intervention Materials and Techniques"** of the National Technical University of Athens as well as a member of the programme committee since 1997.

She has served as the Director of the Materials Science and Engineering Section at NTUA (2006-2008).

She is the author and co-author of 2 European patents and has more than 120 papers published in International Scientific journals and conference proceedings. She has written 4 books concerning Advance Materials and Spectroscopic and Non Destructive Methods.

She has been either the president or a member of the Organizing/Scientific Committees of 7 International and 6 National Conferences and Workshops. She was the President and Coordinator of the International Scientific Committee of the 8<sup>th</sup> International Symposium on the Conservation of Monuments in the Mediterranean Basin with a focus on "**Monuments Damage Hazards and Rehabilitation Technologies**" (2010).

She has participated in 19 National, 3 bilateral and 11 European research programs as the scientific coordinator or the main researcher.

She has supervised 14 PhD theses, 15 MSc theses, and 32 undergraduate theses. She has a long-standing collaboration with the Community of Mediterranean Universities (CUM), covering more than 140 Universities.

She has participated in 33 applied technical studies on important Greek and Mediterranean monuments of European architectural and cultural heritage (the Hagia Sophia in Istanbul, Byzantine and Post-Byzantine Monasteries in Mount Athos, in Crete, Venetian Fortresses in Rhodes, Rethymnon and Herakleion, Corfu, architectural monuments in Venice, Magna Grecia,

Gargano, the Temple of Eleusis, Bronze Age copper-based artifacts, ancient glass, marble, gold objects etc).

She is a member of the Materials Research Society, the International Society for Optical Engineering, the Academy of Sciences of New York, ICOMOS, the Greek Society of NDT, the Technical Chamber of Greece, et al.

Her research interests include the application of Liquid Crystals mixture on metallic and non-metallic surfaces for the characterization of their microstructure. The last 25 years her main research has been the study of the microstructure, chemical composition and characterization of organic, inorganic, metallic and composite materials with techniques such as: UV-VIS Spectroscopy, FT-IR, SEM-EDX, AAS, ICP, XRD, XRF, Porosimetry, Thermal Analysis DTA, TG, DSC. She is an expert at the application, measurement and interpretation of advanced non-invasive techniques in Lab and in situ (Non-Destructive methods and techniques, such as Fiber Optics Microscopy, Fiber Optics Diffuse Reflectance Spectroscopy, Digital Image Processing, Infrared Thermography, Ultrasonics, Ground Penetrating Radar) for materials evaluation and structural integrity, concerning: new and historic structures and complexes, conservation and protection interventions on the scale of architectural surfaces, historic artifacts, aerospace and surface transport composites.

She has founded the NDT Lab in the Chemical Engineering Department of NTUA [www.ndt-lab.gr](http://www.ndt-lab.gr)

She has a long-term co-operation on the basis of research programmes and other scientific activities with more than 30 foreign, Greek Universities, Research Centres and Industries.

## Publications

### Publications in peer reviewed periodical and special editions-books

1. "Influence of Solid Support Sorptive Properties on the Color of Cholesteric Liquid Crystals. I Qualitative Observations", Th. Skoulikidis and M. Kouli, Mol. Cryst. Liq. Cryst. 61, 31 (1980).
2. "Preliminary Results of Contact Spectrothermography: Significance of the Isotherms", C. Stremmenos and M. Kouli, European J. of Nuclear Medicine, pub. Springer Verlag, Vol. 6, No 5, 29 (1981).
3. "Introduction to Contact Termography. Preliminaries on Contact Spectrothermography", C. Stremmenos and M. Kouli, Acta Termographica Vol. 6, No 1-2-3, 19-25 (1981).

4. "Influence of Solid Support Sorptive Properties on reflected wavelengths from thecholesteric mesophase", Th. Skoulikidis and M. Koui, "Cristalli Liquidi" del GNCL, UNICAL, CLUT Pub., Torino, pp. 569-585, (1981).
5. "Influence of Solid Support Sorptive Properties on the Color of Cholesteric Liquid Crystals. II Quantitative Results", Th. Skoulikidis and M. Koui, Mol. Cryst. Liquid Cryst. 95, 323 (1983).
6. "A New Non-Destructive Method to Differentiate *in situ* Marble from Gypsum and CaCO<sub>3</sub> from Inversion of Gypsum; Use of Liquid Crystals", Th. Skoulikidis, M. Koui and A. Kostoudi, Mol. Cryst. Liq. Cryst. 206, 117 (1991).
7. "Digital Image Processing for the Environmental Impact Assessment on Architectural Surfaces", A. Moropoulou, M. Koui, P. Theoulakis, Ch. Kourtelis, F. Zezza, Journal of Environmental Chemistry and Technology, 1, 23-32, (1995).
8. "Influence of the thickness of NixOy support on the reflected wavelength from cholesteric liquid crystals", M. Koui, H.S. Karayannis, M. Kartsonakis, Liquid Crystals, Vol 22, No 5, 567-574, (1997).
9. "Influence of the sorptive properties of Zinc oxide as support on the reflected light band from cholesteric liquid crystals". Th. Skoulikidis, M. Koui, N. Skotaras, Mol. Cryst. and Liq. Cryst. , 300, 65 (1997).
- 10."Macro- and micro non destructive tests for environmental impact assessment on architectural surfaces", Moropoulou, A., Koui, M., Tsiourva, Th., Kourtelis, Ch., Papasotiriou, D., Materials Issues in Art and Archaeology V, Vol. 462, ed. P.B. Vandiver, J.R. Druzik, J.F. Merkel, J. Stewart, Pub. Materials Research Society, Pittsburgh, pp. 343-349, (1997).
- 11."The ancient Kamirian water storage tank, a proof of concrete technology and durability for three millenniums" M. Koui, Ch. Ftikos, Materials and Structures, Vol. 31, pp. 623- 627, (1998).
- 12."Non-destructive evaluation of the performance of mortars on historic masonries", Moropoulou, A., Koui. M., Christaras, B., Tsiourva, Th., PACT, Revue du groupe europeen d'etudes pour les techniques physiques, chimiques, biologiques et mathematiques appliquees a l'archeologie, Vol. 55, pp. 243-266, (1998).
- 13."Non destructive evalution of pilot scale treatments for porous stone consolidation in the Medieval City of Rhodes", Moropoulou, A., Tsiourva, Th., Theoulakis, P., Christaras, B., Koui. M., PACT, Revue du groupe europeen d'etudes pour les techniques physiques, chimiques, biologiques et mathematiques appliquees a l'archeologie, Vol. 56, pp. 259-278, (1998).
- 14."NDT for materials quality control, environmental impact assessment and management of cultural heritage", Moropoulou, A., Koui, M.,

- Avdelidis, N.P., Achilleopoulos, N., J. Insight of the British Institute of Non-Destructive Testing, Vol. 41, No. 6, pp. 362-368, (1999).
15. "Preservation planning: Monitoring techniques and spatial management of information", Moropoulou, A., Koui, M., Avdelidis, N., Kourteli, Ch., Van Grieken, R., Scienza e Beni Culturali XV, ed. G. Biscontin, G. Driussi, Pub.. Arcadia Ricerche Editore, Padova, pp. 701-714, (1999).
  16. "Digital image processing for weathering analysis and planning of conservation interventions on historic structures and complexes", Moropoulou, A., Koui, M., Kourteli, Ch., Achilleopoulos, N., Zizza, F., Advances in Intelligent Systems: Concept,, Tools and Applications, International Series on Microprocessor-B, ed. S. G. Tzafestas, Kluwer Academic Publishers, pp. 401-414 (1999).
  17. "Cholesteric liquid crystals as weathering indicators for marble surfaces", Koui, M., Moropoulou, A., Bisbikou, K., Liquid Crystals, V 27, No. 12, pp. 1561-1571, (2000).
  18. "Infrared thermography as a NDT tool in the evaluation of materials & techniques for the protection of historic monuments", Moropoulou, A., Koui, M., Avdelidis, N.P., J. Insight of the British Institute of non-destructive testing, 42, N6, pp. 379-383, (2000).
  19. "Detection of defects of airport pavements using infrared thermography", Moropoulou, A., Avdelidis, N.P., Koui, M., J. Canadian Society of NDT, Vol.21, No. 5, pp. 5-8 (2000).
  20. "Intelligent passive control methods to inspect quality of airport runways and asphalt pavements", Moropoulou, A., Koui, M., Avdelidis, N.P., Kakaras, K., Computational Methods for Smart Structures and Materials, ed. C.A. Brebbia, Publ. Wessex Institute of Technology, pp. 85-93, (2000).
  21. "Dual band infrared thermography as a NDT tool for the characterization of the building materials and conservation performance in historic structures", Moropoulou, A., Avdelidis N.P., Koui, M., Kanellopoulos, N.K., Nondestructive Methods for Materials Characterization, ed. T. Metikas, N. Meyendorf, G. Baaklini, R. Gilmore, Pub. Materials Research Society, Pittsburgh, Vol. 591, pp. 169-174, (2000).
  22. "Longterm performance evaluation of consolidation treatments in situ", Moropoulou, A., Haralampopoulos, G., Tsiorva, Th., Theoulakis, P., Koui, M., Scienza e Beni Culturali IX, ed. G. Biscontin, G. Driussi, Pub., Arcadia Ricerche S.r.l., pp. 239-255, (2000).
  23. "Determination of emissivity for building materials using infrared thermography", Moropoulou, A., Avdelidis, N.P., Koui, M., Tzevelekos, I., Thermology International, Vol. 10, No. 3, pp. 115 -118, (2000).
  24. "Investigation for the compatibility of conservation interventions on Hagia Sophia mosaics using NDT techniques", A. Moropoulou, M. Koui, N.P. Avdelidis, E.T. Delegou, E. Aggelakopoulou, M. Karoglou, P. Karmis,

- A. Aggelopoulos, S. Griniezakis, E.A. Karagianni, N.K. Uzunoglou, *Pact*, Journal of European Study Group on Physical, Chemical, Biological & Mathematical Techniques Applied to Archaeology, Vol.59, pp. 103-120, (2000).
25. "Inspection of airport runways and asphalt pavements using long wave infrared thermography", Moropoulou, A., Kouli, M., Avdelidis, N.P., Kakaras, K., Thermosense XXII, Eds: R.B. Dinwiddie, D.H. Le Mieux, Vol. 4020, SPIE Pub. , pp. 302-309, (2000).
26. "Preservation planning as a tool for a sustainable historic city", Moropoulou, A., Kouli, M., Avdelidis N.P., Kourteli, Ch., Advances in Architecture 9, Urban Regeneration and Sustainability: The Sustainable City, ed. C.A. Brebbia, Pub. Wessex Institute of Technology, pp. 327- 336, (2000).
27. "GIS management of NDT results for the spatial estimation of environmental risks to historic monuments", Moropoulou, A., Kouli, M., Kourteli, Ch., Avdelidis, N.P., Achilleopoulos, N., Risk Analysis II, ed. C.A. Brebbia, Pub. Wessex Institute of Technology, pp. 207 - 215, (2000).
28. "An application of thermography for detection of delaminations in airport pavements", Moropoulou, A., Avdelidis, N.P., Kouli, M., Kakaras, K., J. of NDT & E International, 34(5), pp. 329-335, (2001).
29. "Examination of plastered mosaic surfaces using NDT techniques", Moropoulou, A., Avdelidis, N.P., Aggelakopoulou, E., Griniezakis, S., Kouli, M., Aggelopoulos, A., Karmis, p., Uzunoglou, N. K., *Insight* J. of the British Institute of non-destructive testing, 43(4), pp. 241-243, (2001).
30. "Thermography as an evaluation tool for studying the movement of water through various porous materials; capillary rise and evaporation", Moropoulou, A., Avdelidis N.P., Theoulakis, P., Kouli, M., Thermosense XXIII, Eds: A. E. Rozlosnik, R. B. Dinwiddie, SPIE Pub., Vol. 4360, pp. 229- 235, (2001).
31. "Integrated methodology for measuring and monitoring salt decay in the Medieval City of Rhodes porous stone", A. Moropoulou, M. Kouli, Ch. Kourteli, P. Theoulakis, N.P. Avdelidis, J. Mediterranean Archaeology & Archaeometry 1(1), pp. 57- 68, (2001).
32. "Microscopic method for estimating the texture of weathering crusts on ancient marbles", Moropoulou, A., Kouli, M., Tsantila, B., Bisbikou, K., Fitzner, B., Annales Geologiques Des Pays Helleniques, Ed. Special, pp. 373-380, (2001).
33. "Infrared thermographic assessment of materials and techniques for the protection of cultural heritage", Moropoulou, A., Avdelidis, N.P., Kouli, M., Delegou, E.T., Tsiourva, Th., Multispectral and hyperspectral image acquisition and processing, ed. Q. Tong, Y. Zhu, Z. Zhu, Vol. 4548, SPIE Publ., pp.313-318, (2001).

34. "IR thermography scanning technique in the assessment of airport pavements", A. Moropoulou, N.P. Avdelidis, M. Koui, NDE Challenges of the 21st Century: Theory to Practice, Ed: C. Cetinkaya, Vol. 21, ASME International, pp. 79-82, (2001).
35. "Infrared thermography and ground penetrating radar for airport pavements assessment", A. Moropoulou, N.P. Avdelidis, M. Koui, A. Aggelopoulos, P. Karmis, Journal of Nondestructive Testing and Evaluation, 18 (1), pp. 37-42, (2002).
36. "Assessment of cleaning conservation interventions on architectural surfaces using an integrated methodology", A. Moropoulou, E.T. Delegou, N.P. Avdelidis, M. Koui, Materials Issues in Art and Archaeology VI, Eds: P. Vandiver, M. Goodway, J.R Druzik, J.L Mass, Vol. 712, Publ. Materials Research Society, pp. 69-76 (2002).
37. "Non-destructive techniques for the characterization of structural materials", A. Moropoulou, E. Aggelakopoulou, N.P. Avdelidis, M. Koui, The undergraduate Curriculum in Materials Science and Engineering, Eds: E.P. Douglas, O. D. Dubon Jr, J.A. Isaacs, W.B. Knowlton, M.S. Whittingham, Vol. 760E, Publ. Materials Research Society, Pittsburgh, in CD-Rom, (2003).
38. "Study of Bronze Age copper-based weapons from Greece and Albania" M. Koui, E. Andreopoulou-Mangou, L. Papazoglou-Manioudaki, A. Priftaj-Vebecka, P. Papandreopoulos, F. Stamati, J. Mediterranean Archaeology & Archaeometry, Vol. 6., N.2, pp. 5-22 (2006).
39. "Thermographic studies of plastered mosaics" N.P. Avdelidis, M. Koui, C. Ibarra-Castanedo, X. Maldague, J. Infrared Physics & Technology, Issue 3, (SPEC. ISS.), pp. 254-256 (2007).
40. "FT-IR spectroscopic studies of supramolecular liquid crystals obtained from multi cationic piperazinium and aza macrocyclic alkylsulfates", M. Koui, A. Nikokavoura, J. Anastassopoulou, T. Theophanides, Asian Chemistry Letters, Vol 11, Nos 1 & 2 (2007).
41. A review on the philosophy, history and standards of infrared thermography approaches: presenting applications concerning transient thermography surveys", N.P. Avdelidis, C. Ibarra-Castanedo, M. Koui, Z.P. Marioli-Riga, X. Maldague, Indian Journal of NDT, (2008).
42. "A Non Destructive Study of Identification of Pigments on Monuments by Colorimetry", E. Cheilakou M. Kartsonaki, M. Koui, P. Callet, "International Journal of Microstructure and Materials Properties", Vol. 4, No 1, pp. 112-127. (2009).
43. " Non destructive characterization by FOM and ESEM - EDX of ancient glass objects from the Aegean with an approach of the manufacturing technique", E. Cheilakou, N. Liarokapi, M. Koui, Materials and Structures Journal, Vol 45, pp. 235-250 (2011).

44. "Evaluation of defects in panel paintings using infrared, optical and ultrasonic techniques", S. Sfarra, P. Theodorakeas, C. Ibarra-Castanedo, N. P. Avdelidis, A. Paoletti, D. Paoletti, K. Hrissagis, A. Bendada, M. Koui, X. Maldague , J. Insight, Vol. 54(1), pp. 21-27 (2012).
45. "NDT inspection of plastered mosaics by means of Transient Thermography and Holographic Interferometry", P. Theodorakeas , C. Ibarra-Castanedo, S. Sfarra, N. P. Avdelidis, M. Koui, X. Maldague, D. Paoletti, D. Ambrosini , J. NDT&E International, Vol. 47, pp. 150-156 (2012).
46. "Non-destructive surface analysis of accelerated corroded copper alloys", P. Papandreopoulos, M. Koui, D. Yfantis, Th. Theophanides. In J. Anti-Corrosion Methods and Materials, Vol. 59 (3), pp.110 - 120 (2012).
47. "Thermographic, Ultrasonic and Optical Methods: A New Dimension in Veneered Wood Diagnostics", S. Sfarra, P. Theodorakeas, N.P. Avdelidis, M. Koui. In Russian J. of Nondestructive Testing, Vol. 49 (4), pp. 234-250 (2013).
48. "Identification of pigments on Byzantine wall paintings from Crete (14<sup>th</sup> century AD) using non-invasive Fiber Optics Diffuse Reflectance Spectroscopy (FORS).", E. Cheilakou, M. Troullinos, M. Koui (2014) Journal of Archaeological Science Vol. 41, pp.541-555 (2014).
49. "Quantitative analysis of plastered mosaics by means of active infrared thermography.", P. Theodorakeas, N.P. Avdelidis, E. Cheilakou, M. Koui (2014) Construction and Building Materials (73), pp. 417-425
50. "Surface and Subsurface Defects Detection in Impacted Composite Materials Made by Natural Fibers, Using Nondestructive Testing Methods.", S. Sfarra, N.P. Avdelidis, C. Ibarra-Castanedo, C. Santulli, P. Theodorakeas, A. Bendada, D. Paoletti, M. Koui, X. Maldague (2014). Journal of Composite Materials, Vol. 4 (5A), pp. 1-9.
51. "Non-destructive testing of carbon-fibre-reinforced polymer materials with a radio-frequency inductive sensor.", B. Salski, W. Gwarek, P. Korpas, S. Reszewicz, A.Y.B. Chong, P. Theodorakeas, I. Hatzioannidis, V. Kappatos, C. Selcuk, T. Gan, M. Koui, M. Iwanowski, B. Zielinski (2015). Journal of Composite Structures, Vol. 122, pp. 104-112.
52. "How to Retrieve Information Inherent to Old Restorations Made on Frescoes of Particular Artistic Value Using Infrared Vision?", S. Sfarra, P. Theodorakeas, C. Ibarra-Castanedo, N. P. Avdelidis, D. Ambrosini, E. Cheilakou, D. Paoletti, M. Koui, A. Bendada, X. Maldague (2015). Journal of Thermophysics, Vol. 35(10), pp. 3051-3070.
53. "Passive and active infrared thermography: An overview of applications for the inspection of mosaic structures.", P. Theodorakeas, E. Cheilakou, E. Ftikou, M. Koui (2015). In J. of Physics: Conference Series, IOP Publishing, Vol. 655, 012061.

54. "Portable automated radio-frequency scanner for non-destructive testing of carbon fiber reinforced polymer composites.", B. Salski, W. Gwarek, P. Kopyt, P. Theodorakeas, I. Hatzioannidis, M. Kouli, A.Y. B. Chong, S.M. Tan, V. Kappatos, C. Selcuk, T.H. Gan (2016). In J. of Nondestructive Evaluation, Vol. 35(2), art. no. 25.
55. "Inspecting marquetry at different wavelengths: the preliminary numerical approach as aid for a wide-range of non-destructive tests.", S. Sfarrà, P. Theodorakeas, J. Černecký, E. Pivarčiová, S. Perilli, M. Kouli (2017). J. of Non Destructive Evaluation, Vol. 36 (1), art. no. 6.
56. "S.S. Annunziata Church (L'Aquila, Italy) unveiled by non- and micro-destructive testing techniques.", S. Sfarrà, E. Cheilakou, P. Theodorakeas, M. Kouli (2017). J. Applied Physics A: Materials Science & Processing, Vol. 123 (3), art. no. 215.
57. "Numerical simulations and advanced thermographic signal processing for the evaluation of the state of conservation of mosaics - First part.", S. Sfarrà, C. Ibarra-Castanedo, P. Theodorakeas, N.P. Avdelidis, S. Perilli, H. Zhang, I. Nardi, M. Kouli, D. Ambrosini, X. Maldague (2017). International J. of Thermal Sciences, Elsevier, accepted for publication.

#### Publications in peer reviewed international conference proceedings

1. "Exploitation of the rust of the ferrous nickel industry for pigments production", Batis, G., Moropoulou, A., Kouli, M., Zaggogiannis, A., Padazopoulou, P., Daflos, E., In Proc. the 2<sup>nd</sup> Chemistry Congress Greece - Cyprus on Chemistry and Environment, Athens, Vol. 2, (1990) pp. 533-537.
2. "Study on the behaviour of a solid waste from a Ferrous-Nickel Plant into aqueous environment", A. Moropoulou, M. Loisidou, G. Batis, M. Kouli, K.J. Haralambous, G. Petroutsos, E. Daflos, VIII International Congress "Heavy Metals in the Environment", Edinburgh (U.K) Sept. 16-18, (1991).
3. "Use of liquid crystals deterioration indicators on marble surfaces at the archaeological site of Eleusis". M. Kouli and K. Bisbikou: European Commission Research Workshop Origin, Mechanisms and Effects of Salts on Degradation of Monuments in Marine and Continental Environments, 25-27 March, Bari, ITALY Sc. Ed. F. Zeffa (1996) pp. 377-384.
4. "Techniques and methodology for the preservation and environmental management of historic complexes - The case of the Medieval City of Rhodes", Moropoulou, A., Kouli, M., Kourtelis, Ch., Papasotiriou, D., Theoulakis, P., Tsiorva, Th., Achilleopoulos, N., Karakantas, Ch., Romanos, A., Tokatlidou, K., Koliadis, Th., Zarifis, N., Van Grieken, R., Delalieux, F., Silva, B., Molina, E., Vicente, M.A., Vicente, S., Macri, F., Zeffa, F., In Proc. the 4<sup>th</sup> International Symposium on the Conservation

of Monuments in the Mediterranean , ed. A. Moropoulou, F. Zizza, E. Kollias & I. Papachristodoulou, Pub.. Technical Chamber of Greece, Rhodes, Vol. 4 (1997) pp. 603-634.

5. "The use of FT-IR Spectroscopy for surface analysis of atmospheric polluted ancient marbles", Anastassopoulou J., Koui M., Yfantis D., Theophanides T., In Proc. the 4<sup>th</sup> International Symposium on the Conservation of Monuments in The Mediterranean Basin, V 2, 6-11 May, Rhodes, Greece, (1997) pp. 29-34.
6. "The ancient Kamirian water storage tank" A proof of concrete technology and durability for three millenniums", Koui M., Ftikos Ch., In Proc. the 4<sup>th</sup> International Symposium on the Conservation of Monuments in The Mediterranean Basin, V 4, 6-11 May, Rhodes, Greece, (1997) pp. 271-280.
7. "Non-destructive evaluation of the performance of mortars on historic masonries" Moropoulou, A., Koui., M., Christaras, B., Tsiorva, Th., European Conference on Compatible Restoration Materials for the Protection of European Cultural Heritage, INCOMARECH, 11-12 Dec. NTUA, Athens, Greece (1998).
8. "In situ non destructive evaluation of the compatibility of repair mortars to the historic masonry validated by thermal analysis", Moropoulou, A., Koui, M., Moundoulas, P., Avdelidis, N.P., In Proc. the Int. Conf. on 4<sup>th</sup> Mediterranean Conference on Calorimetry and Thermal Analysis, ed. G.C. Papanicolaou, G. Parisakis, Patras, (1999), pp. 171-178.
9. "Integrated non-destructive evaluation for the protection of Cultural Heritage", Moropoulou, A., Christaras, B., Koui, M., Avdelidis, N.P., Tsiorva, Th., Kourtelis, Ch., In Proc. the Int. Conf. on Emerging Technology in Non Destructive Testing, eds D. Van Hemelrijck, A. Anastassopoulos, Th., Philippidis, 2000 Balkema Rotterdam, 24-26 May, Athens, (1999), pp.323-333.
10. "Microstructural criteria to evaluate stone susceptibility to sea-salt decay on Mediterranean and Atlantic coast monuments", Moropoulou, A., Koui, M., Theoulakis, P., Bakolas, A., Roumpopoulos, K., Michailidis, P., Van Grieken, R., Cardell-Fernandez, In Proc. the Int. Symp. on 5th the Conservation of Monuments in the Mediterranean basin, Seville, (2000) p. 316.
11. "Innovative strategies for the preservation of historic cities by ND monitoring techniques and GIS management of data regarding environmental impact on historic materials and structures", Moropoulou, A., Koui, M., Avdelidis P. N., In Proc. the 9<sup>th</sup> Int. Congress on Deterioration and Conservation of Stone, Venice, (2000), pp. 119-127.
12. "Flaw detection and evaluation of pavements by means of infrared thermography". Moropoulou, A., Avdelidis, N.P., Koui, M., Kakaras, K.,

In Proc. the INFRAMATION Int. Conf. on infrared thermography, Orlando, (2000), pp. 167-172.

13. "Compatibility assessment of building materials using infrared Thermography", Moropoulou, A., Avdelidis, N.P., Koui, M., In Proc. the 15<sup>th</sup> World Conf. of NDT, Rome-Italy, (2000), Proceedings in CD- Rom, pp. 1-6.
14. "Non-destructive investigation of architectural surfaces in polluted urban atmosphere", Moropoulou, A., Delegou, E.T., Avdelidis, N.P., Koui, M., In Proc. NDT 2000 - the 39<sup>th</sup> Conference of the British Institute of NDT, Buxton, UK, (2000) pp. 143-148.
15. "Calculating the emissivity of building materials for infrared thermographic applications", Moropoulou, A., Koui, M., Avdelidis, N.P., Delegou, E.T., Kouris, S., In Proc. the 6th Conf. of the Slovenian Society of NDT, Portoroz, Slovenia (2001), pp. 333-337.
16. "Infrared thermography in the evaluation of cleaning interventions on architectural surfaces", Moropoulou, A., Avdelidis, N.P., Delegou, E.T., Koui, M., In Proc. the INFRAMATION 2001-Int. Conf. on infrared thermography, Orlando-Florida, USA, (2001), pp.171-175.
17. "Microscopic method for estimating the texture of weathering crusts on ancient marbles", Moropoulou, A., Koui, M., Bisbikou, K., Tsadila, B, Fitzner, B, 8<sup>th</sup> Euroseminar on Microscopy Applied to Building Materials, September 4-7, Athens,Greece (2001), pp. 373-380.
18. Invited Paper "Research and development for a new methodology based on NDT techniques for the reveal of mosaics", A. Moropoulou, N.P. Avdelidis, E. Aggelakopoulou, M. Koui, A. Aggelopoulos, S. Griniezakis, N.K. Uzunoglou, In Proc. the 8th ECNDT Conference, Barcelona, Spain, (2002), Proceedings in CD-Rom, Paper # 443.
19. "NDT evaluation of cleaning materials & techniques on historic facades", A. Moropoulou, M. Koui, Th. Tsiourva, N.P. Avdelidis, A. Bakolas, In Proc. the 8<sup>th</sup> ECNDT Conference, Barcelona, Spain, (2002), Proceedings in CD-Rom, Paper # 445.
20. "NDT methodology for the protection of mosaics", A. Moropoulou, M. Koui, N.P. Avdelidis, E.T. Delegou, E. Aggelakopoulou, M. Karoglou, P. Karmis, A. Aggelopoulos, S. Griniezakis, E.A. Karagianni, N.K. Uzunoglou, In Proc. the Art 2002 Int. Conference, Antwerp, Belgium, (2002), Proceedings in CD-Rom.
21. Invited Paper "IR thermography for the assessment and monitoring of historic materials and structures", N.P. Avdelidis, A. Moropoulou, M. Koui, In Proc. the 3<sup>rd</sup> International Conference on Non-Destructive Testing of the Hellenic Society for NDT, Chania - Greece, (2003), pp. 315-319.
22. "FT-IR Studies for the assessment of cleaning interventions on Pedelic marble surfaces" Koui, M., Delegou, E., Dai, D., Rapti,E., Mauridis, T.,

Moropoulou, A., In Proc. the 6<sup>th</sup> International Symposium on the Conservation of Monuments in the Mediterranean Basin, Lisbon – Portugal (2004), pp. 437-441.

23. "Transient thermographic evaluation of plastered mosaics", M. Koui, N.P. Avdelidis, Ch. Arvanitis, In Proc. the 7<sup>th</sup> Quantitative Infrared Thermography Conference (QIRT), Brussels – Belgium, (2004), Book of Proceedings.
24. "Thermographic studies of plastered mosaics" N.P. Avdelidis, M. Koui, C. Ibarra-Castanedo, X. Maldague , In Proc. the 9<sup>th</sup> ECNDT Conference, Rome-Italy, (2005), Proceedings in CD- Rom.
25. "Μελέτη της Σύστασης και της Τεχνικής Κατασκευής Χάλκινων Ξιφών Προϊστορικής Εποχής από τον Ελληνικό και Αλβανικό Χώρο", M. Koui, E.Ανδρεοπούλου-Μάγκου, E. Παπάζογλου-Μανιουδάκη, A. Priftaj-Vevecka, Π. Παπανδρεόπουλος, 2<sup>o</sup> Διεθνές Συνέδριο "Αρχαία Ελληνική Τεχνολογία", EMAET, Αθήνα, Οκτώβριος (2005), σ. 89-97.
26. "Corrosion products analysis of simulated ancient copper alloys by non-destructive techniques", Koui M., Yfantis D., Papandreopoulos P., Pliatsikas K., In Proc. the XII Balkan Mineral Processing Congress (BMPC 2007), Delphi, 10-14/6, Ed. by G.N. Anastassakis, (2007) pp. 721-727.
27. "The Preservation of a Roman Aqueduct in Arcadia from Spring Water", M. Koui, D. Yfantis, E. Cheilakou, S. Raftopoulou, A. Stratis, F. Zizza, In Proc. the 7<sup>th</sup> International Symposium on the Conservation of Monuments in the Mediterranean Basin, June 6-9, Orleans, France (2007) pp. 243-254.
28. "Sea Salt Dispersion in Stream Valleys and Stone Decay", F. Zizza, M. Koui, E. Cheilakou, In the Proc. the 7<sup>th</sup> International Symposium on the Conservation of Monuments in the Mediterranean Basin, June 6-9, Orleans, France (2007) pp.373-384.
29. "Non destructive identification of the colouring substances on the monuments" M. Kartsonaki, M. Koui, P. Callet, E. Cheilakou, In Proc. the 4<sup>th</sup> International Conference on Non - Destructive Testing of Hellenic Society for Non - Destructive Testing, Crete, Greece, October (2007), on line at: <http://www.ndt.net/article/hsndt2007/files/KOUI.pdf>
30. "Corrosion products analysis of simulated ancient copper alloys by non-destructive techniques (Part II) ", P. Papandreopoulos, M. Koui, D. Yfantis, In Proc. the 8<sup>th</sup> Balkan Mineral Processing Congress (BMPC 2009), Bucharest, Romania, June 14-17, (2009), Vol. I, pp. 79-86.
31. "Corrosion products identification of simulated ancient copper alloys and bronze age copper- based objects by fiber optics diffuse reflectance spectroscopy technique (FODRS)" E. Cheilakou and M. Koui, In Proc. the 8<sup>th</sup> Balkan Mineral Processing Congress (BMPC 2009), Bucharest, Romania, June 14-17 (2009). CD ROM

32. "Thermography as a non-invasive and automated NDT approach for composites assessment", N. Avdelidis and M. Koui, In Proc. the SPIE Defense, Security and Sensing, Orlando, Florida, USA, 13-17 April (2009).
33. "Transient thermography tools for NDT & E of composites" N. Avdelidis, C. Catsanedo, E. Cheilakou, E. Saarimäki, T. Kauppinen, S. Fanou, M. Koui, X. Maldague, C. Ennaceur, In Proc. the NDT in Canada 2009 National Conference, Aug 25-27, (2009) CD ROM
34. "LWIR and MWIR thermography tools for composites assessment", N.P. Avdelidis, E. Saarimäki, T. Kauppinen , P. Theodorakeas, A. Tati, E. Cheilakou, S. Fanou, M. Koui, C. Ennaceur. In proc. the SPIE- The International Society for Optical Engineering, Orlando, Florida, USA, 5-9 April (2010) Thermosense XXXII, Vol. 7661, pp.76610P1-11.
35. "Non destructive study of plastered mosaics with the use of active thermograph", Cheilakou, E., Avdelidis, N. P., Ibarra - Castanedo, C., Koui, M., Bendada A. H., Maldague, X. P. V., In proc. the SPIE- The International Society for Optical Engineering, Orlando, Florida, USA, 5-9 April (2010) Thermosense XXXII pp.76610F-1-76610F-8.
36. "The ancient theatre of Sikyon: Preliminary Studies on the structural materials and the decay patterns – proposals for prompt protection", Cheilakou, E., Papandreopoulos, P., Theodorakeas, P., Avdelidis, N. P., Sideris, D., Koui, M., In Proc. the 8<sup>th</sup> International Symposium on the Conservation of Monuments in the Mediterranean Basin- MONUBASIN8, Patras, Greece, 31 May- 2 June (2010). Vol. 1, pp. 129-148.
37. "The Mycenaean tomb 'Treasury of Minyas: Conservation problems and evaluation of deterioration phenomena", E. Ftikou, E. Cheilakou P. Theodorakeas, N.P. Avdelidis, K. Roumpopoulos, M. Koui. In Proc. of the 8th International Symposium on the Conservation of Monuments in the Mediterranean Basin- MONUBASIN8, Patras, Greece, 31 May- 2 June (2010). Vol.1, pp. 207-222.
38. "Conservation procedures for the reburials of mosaic pavements: A review of materials and techniques", P. Theodorakeas, M. Koui. In Proc. the 8<sup>th</sup> International Symposium on the Conservation of Monuments in the Mediterranean Basin -MONUBASIN8, Patras, Greece, 31 May- 2 June (2010). Vol. 3, pp. 589- 604.
39. "Active thermographic NDT approaches for the assessment of plastered mosaics", P. Theodorakeas , N.P. Avdelidis, M. Koui, C. Ibarra - Castanedo , E. Cheilakou, A. Bendada, K. Ftikou ,X.P.V. Maldague . In Proc. the 8<sup>th</sup> International Symposium on the Conservation of Monuments in the Mediterranean Basin- MONUBASIN8, Patras, Greece, 31 May- 2 June (2010). Vol. 2, pp. 442-456.
40. "Extending standards to incorporate metadata from non destructive testing techniques (NDT) - Application to the damage assessment and rehabilitation process" D. Kouis, V. Tsoukala, K. Pouli, E. Cheilakou, M. Koui. In Proc. the 8<sup>th</sup> International Symposium on the Conservation of

Monuments in the Mediterranean Basin -MONUBASIN8, Patras, Greece, 31 May- 2 June (2010), Vol. 2, pp. 510-523.

41. "NDT characterisation of carbon-fibre and glass-fibre composites using non-invasive imaging techniques", N.P. Avdelidis, C. Ibarra-Castanedo, P. Theodorakeas, A. Bendada, E. Saarimaki, T. Kauppinen, M. Koui, X.P.V. Maldaque. In Proc. the 10<sup>th</sup> Quantitative Infrared Thermography Conference (QIRT), Quebec City, Canada, (2010). pp. 703-710.
42. "NDT characterization of ancient glass objects from the Aegean with an approach of the manufacturing technique", E. Cheilakou, N., Liarokapi, M. Koui. In Proc. the 5<sup>th</sup> International Conference on Emerging Technologies in Non-Destructive Testing (ETNDT5), Ioannina, Greece,(2011), Eds Paipetis et al, pp. 63-69.
43. "Non-Destructive Testing (NDT) Methods used for the Study of Stone Frescoes" S. Sfarrà, P. Huke, P. Theodorakeas, D. Paoletti, N. P. Avdelidis, D. Ambrosini, R. Klattenhoff, M. Koui, R. B. Bergmann. In Proc. the 6<sup>th</sup> International Workshop "NDT in progress 2011", Prague, Czech Republic, (2011). CD ROM.
44. "Holographic Interferometry (HI), Active Infrared Thermography (IRT) and Ultrasound Testing (UT) for the nondestructive assessment of esteemed hand-painted ceramic sample panels" S. Sfarrà, C. Ibarra-Castanedo, P. Theodorakeas, N.P. Avdelidis, A. Paoletti, D. Paoletti, K. Hrissagis, A. Bendada, M. Koui, X. Maldaque In Proc. the 6<sup>th</sup> International Workshop "NDT in progress 2011", Prague, Czech Republic, (2011). CD ROM
45. "Importance of integrated results of different non-destructive techniques in order to evaluate defects in panel paintings: the contribution of infrared, optical and ultrasonic techniques", S. Sfarrà, P. Theodorakeas, C. Ibarra-Castanedo, N. P. Avdelidis, A. Paoletti, D. Paoletti, K. Hrissagis, A. Bendada, M. Koui, X. Maldaque. In Proc. the SPIE- The International Society for Optical Engineering, Optical Metrology Conference 8084, Münich, Germany, (2011). Vol. 8084, art no. 80840R.
46. "*A thermographic survey for evaluating in situ the performance of photovoltaic panels*", N.P. Avdelidis. Y.P. Markopoulos, I.A. Katsis, M. Koui In Proc. the SPIE- The International Society for Optical Engineering, Thermosense XXXIII, Orlando, Florida, USA (2011)
47. "Automated transient thermography for the inspection of CFRP structures: experimental results and developed procedures", P. Theodorakeas, N.P. Avdelidis, K. Hrissagis, C. Ibarra-Castanedo, M. Koui, X. Maldaque. In Proc. the SPIE- The International Society for Optical Engineering, Thermosense XXXIII, Orlando, Florida, (2011), Vol. 8013, pp. 8013W1-11.
48. "Application of Ground Penetrating Radar as a diagnostic technique in concrete bridges inspection", E. Cheilakou, P. Theodorakeas, M. Koui, S. Moustakidis, C. Zeris. In Proc. the 42<sup>nd</sup> International Conference and NDT

Exhibition NDE for Safety 2012 / Defektoskopie 2012, Sec, Czech Republic, (2012), pp. 107- 114.

49. "A promising method for the detection of subsurface defects in impacted composites materials made of natural fibres", S. Sfarrà, N.P. Avdelidis, C. Ibarra-Castanedo, P. Theodorakeas, A. Bendada, D. Paoletti, M. Kouï, X.P.V. Maldaque (2013). In Proc. the 9<sup>th</sup> International Conference on Composite Science and Technology -ICCST9, Sorrento, Italy, (2013). CD ROM, pp. 874-886
50. "Determination of reinforcement and tendon ducts positions on pre-stressed concrete bridges by means of Ground Penetrating Radar (GPR)", E. Cheilakou, P. Theodorakeas, M. Kouï, S. Moustakidis, C. Zeris. In Proc. the 5<sup>th</sup> International Conference on NDT of HSNT- IC MINDT 2013, Athens, Greece, (2013). art. no P.10.5, CD ROM.
51. "The use of Pulsed Thermography for the investigation of art and cultural heritage objects", P. Theodorakeas, S. Sfarrà, C. Ibarra-Castanedo, N.P. Avdelidis, M. Kouï, X.P.V. Maldaque, D. Ambrosini, D. Paoletti. In Proc. the 5<sup>th</sup> International Conference on NDT of HSNT- IC MINDT 2013, Athens, Greece, (2013). art. no. P.2.5, CD ROM.
52. "Comparative evaluation of XRF and SEM-EDX analyses for the nondestructive characterization of soil corroded copper-based alloy", P. Papandreuopoulos, M. Kouï, D. Yfantis. In Proc. the European Corrosion Congress (EUROCORR 2013), CD-ROM.
53. "Radio Frequency Sensing for Non-Destructive Testing of Carbon Fibre Reinforced Composite Materials for Structural Health Monitoring", B. Salski, W. Gwarek, J. Krupka, P. Korpas, A.Y.B. Chong, V. Kappatos, C. Selcuk, T.H. Gan, P. Theodorakeas, V. Dritsa, M. Kouï. In Proc. the 7<sup>th</sup> International Workshop NDT in Progress, 6-7 November, 2013, Dresden, Germany, (2013). CD-ROM.
54. "3D mapping of reinforcement and tendon ducts on pre-stressed concrete bridges by means of Ground Penetrating Radar (GPR)", E. Cheilakou, P. Theodorakeas, M. Kouï, C. Zeris. In Proc. SPIE Smart Structures/NDE 2014: Smart Sensor Phenomena, Technology, Networks, and Systems Integration, San Diego, California, (2014) Vol. 9062, pp. 90620W1-10.
55. "Pulsed thermographic inspection of CFRP structures: experimental results and image analysis tools", P. Theodorakeas, N.P. Avdelidis, C. Ibarra-Castanedo, M. Kouï, X. Maldaque. In Proc. SPIE Smart Structures/NDE 2014: Smart Sensor Phenomena, Technology, Networks, and Systems Integration, San Diego, California, (2014) Vol. 9062, pp. 90620F1-14.
56. "Non-invasive identification of pigments on Mycenaean wallpaintings (14<sup>th</sup> -12<sup>th</sup> Century BC) from the archaeological sites of Mycenae and Tiryns, Peloponnese", E. Cheilakou, V. Dritsa, A. Saint, P. Theodorakeas, M. Kouï, K. Kostanti, A. Christopoulou. In Proc. the 9<sup>th</sup> International

- Symposium on the Conservation of Monuments in the Mediterranean Basin, Ankara, Turkey (2014) (*in press*).
- 57. "Non-invasive discrimination of early and late Bronze Age copper-based objects by means of XRF spectroscopy", A.C. Saint, V. Dritsa, E. Cheilakou, M. Koui. In Proc. the 9<sup>th</sup> International Symposium on the Conservation of Monuments in the Mediterranean Basin, Ankara, Turkey (2014) (*in press*).
  - 58. "Quantitative infrared thermography for the investigation of plastered mosaics: comparison of experimental results and numerical modelling", P. Theodorakeas, E. Cheilakou, M. Koui. In Proc. the 9<sup>th</sup> International Symposium on the Conservation of Monuments in the Mediterranean Basin, Ankara, Turkey (2014) (*in press*).
  - 59. "Integrating Non Destructive Testing Techniques data for cultural heritage monuments to CIDOC Conceptual Reference Model", D. Kouis, D.K. Manesi, S. Zervos, G. Giannakopoulos, E. Cheilakou, M. Koui. (2014). In Proc. the 9<sup>th</sup> International Symposium on the Conservation of Monuments in the Mediterranean Basin, Ankara, Turkey (2014) (*in press*).
  - 60. "Non-Destructive techniques (NDT) as rapid and cost-efficient tools for mosaic conservation", E. Ftikou, E. Cheilakou, P. Theodorakeas, M. Koui. In Proc. the 12<sup>th</sup> Conference of the International Committee for the Conservation of Mosaics (ICCM), Sardinia, Italy (2014) (*in press*).
  - 61. "An FT-IR spectroscopic study of basal cell carcinoma (BSS)", A. Tsakiris, V. Dritsa, J. Anastassopoulou, M. Koui, T. Theophanides. In Proc. the 6<sup>th</sup> International Conference on Oxidative stress in skin biology and medicine, Andros 28-31 August (2014).
  - 62. "Comparative evaluation of aerospace composites using thermography and ultrasonic NDT techniques", P. Theodorakeas, N.P. Avdelidis, I. Hatzioannidis, E. Cheilakou, R. Marini, M. Koui. In Proc. SPIE - The International Society for Optical Engineering: Thermosense XXXVII, Baltimore, Maryland 11-13 May (2015). Art. No. 948504.
  - 63. "Portable automated radio-frequency scanner for non-destructive testing of carbon fibre reinforced polymer composites", B. Salski, W. Gwarek, P. Kopyt, P. Theodorakeas, I. Hatzioannidis, M. Koui, A.Y. Chong, S.M. Tan, V. Kappatos, C. Selcuk, T.H. Gan. In Proc. the 6<sup>th</sup> International Conference On Emerging Technologies in Nondestructive Testing- ETNDT6, Brussels, Belgium, 27-29 May (2015).
  - 64. "Passive and active infrared thermography: An overview of applications for the inspection of mosaic structures", P. Theodorakeas, E. Cheilakou, E. Ftikou, M. Koui. In Proc. the 33<sup>rd</sup> UIT Heat Transfer Conference, L'Aquila, Italy, 22-24 June (2015), CD ROM.
  - 65. "Standardizing NDT & E techniques and conservation metadata for cultural artifacts", D. Kouis, E. Vassilakaki, E. Vraimaki, E. Cheilakou, A. C. Saint, E. Sakkopoulos, E. Viennas, E. V. Pikoulis, N. Nodarakis, N. Achilleopoulos, S. Zervos, G. Giannakopoulos, D. Kyriaki-Manessi, A. Tsakalidis, and M. Koui. In Proc. the MTSR 2015: 9<sup>th</sup> International

Conference on Metadata and Semantics Research, Manchester, UK, 9-11 September (2015) (in press).

66. "An eye to the future, an eye to the past, thinking to a full-scale restoration process: Physical and chemical NDT analysis in cooperation.", S. Sfarrà, E. Cheilakou, P. Theodorakeas, D. Paoletti, M. Koui. In Proc. the 13<sup>th</sup> International Workshop on Advanced Infrared Technology & Applications, Pisa, Italy, 29September - 2 October (2015), pp. 296-99.

## Patents

1. "Procedimento per rilevare la ropografia termica della cute umana e apparecchiatura per l'attuazione del procedimento". C. Stremmenos, M. Koui, Dom. Brev. Italiano Invenzione industriale Dep. No 3355 A/79.
2. "Method and apparatus for surveying the thermal topography of a surface, in particular of human skin". C. Stremmenos, M. Koui, European Patent Application, No.80101404.4/80.

## Referee

- Journal of Analytical and Bioanalytical Chemistry
- Journal Tecnika Chronica of the Technical Chamber of Greece

## Membership of Expert Evaluators

- Membership of Expert Evaluators Panel for CRAFT - SME Specific Measures and Tests, under the programme GROWTH within the Community's 5<sup>th</sup> Framework Programme, Brussels, Belgium.
- Membership of Expert Evaluators of General Secretariat for Research and Technology (Greece).

## Selected Research Programs

- "Study of Prehistoric Period Copper Objects from the Greek and Albanian area" Bilateral Program (Greece-Albania) funded by the Greek General Secretariat of Research and Technology, Coordinator (2003-2005).
- "Continuous health monitoring and non-destructive assessment of composites and composite repairs on surface transport applications) (compare) N: SCP7-GA-2008-218697, European Community (Transport, Collaborative Project), Partner (2008-2011).

- "Combining innovative portable VISUAL, ACOUSTIC, MAGNETIC, and NMR methods, with in-situ CHEMICAL diagnostic tools for effective failure assessment and maintenance strategy of RAIL and subway systems (DIAGNO-RAIL)" European Community (Program Research for the Benefit of SMEs), No 262207, Partner (2010-2012).
- "Cross-IT: Smart condition monitoring and prompt NDT assessment of large concrete bridge structures" European Community (Program Research for the Benefit of SMEs) No 286981, Partner (2011-2013).
- "Development of an integrated information environment for assessment and documentation of conservation interventions to cultural works/objects with Non Destructive Techniques, DOC-CULTURE", MIS 379472. According to the Program entitled "THALIS", co-funded by the Greek Ministry of Education, Lifelong Learning and Religious Affairs and the European Union, under the Operational Project: "Education and Life Long Learning" Coordinator (2012-2015).
- "Development of a high sensitivity ultrasonic phase array Non-Destructive Testing (NDT) method for the early detection of creep damage (Type IV cracking) in alloy steels used in high temperature, high pressure steam systems of electricity generating thermal power stations (CreepTest)" European Community (Program Research for the Benefit of SMEs) No .... Partner (2012-2015).
- "Radio Frequency Sensing for Non-Destructive Testing of Carbon Fibre Reinforced Composite Materials for Structural Health Monitoring; Comp-Health" European Community (Program Research for the Benefit of SMEs) No ..... Partner (2013-2016).