



# 7<sup>th</sup> ARCH\_RNT Archaeological Research & New Technologies

6-8 OCTOBER 2022, KALAMATA

## SYMPOSIUM PROGRAMME

Please note that time corresponds to Eastern European Summer Time – EEST (UTC +3)

<b>Thursday, October 6</b>	
9:00 - 9:40	Registration
9:40 - 10:00	Welcoming Remarks and Opening Ceremony
<b>10:00 - 11:00</b>	<b>SESSION 1: DNA / Isotopic analysis</b>
10:00 - 10:20	O1. The contribution of the innovative research program APOIKIA to the study the phenomenon of Corinthian Colonization in the area of the modern city of Arta (V. Papadopoulou, Ar. Vasios, D. Papakosta and K. Xanthopoulos)
10:20 - 10:40	O2. WEaning Age FiNder (WEAN): A tool for estimating weaning age from isotopic data of dentine microsections (E. Ganiatsou, A. Souleles and C. Papageorgopoulou)
10:40-11:00	O3. Geometric morphometric analysis of human skeletal material from ancient Thessaloniki. Reconstructing the population history of an urban center (A. Aidonis, G. Lyras, S. Protopsalti, S. Tzevreni, S. Vasileiadou, K. Konstantinidou, E. Kalliga and C. Papageorgopoulou)
11:00 - 11:20	Coffee Break
<b>11:20 - 14:00</b>	<b>SESSION 2: Remote sensing and geophysical analysis</b>
11:20 - 11:40	O4. GIS and Unity as analytical and methodological tools in archaeology: Case studies from North Greece (D. Tsiafakis and V. Evangelidis)
11:40 - 12:00	O5. Image Fusion: A superior tool for investigating archaeological sites: Examples from N. Greece (A. Karamitrou and G.N. Tsokas)
12:00 - 12:20	O6. Geophysical investigations at the site of Ancient Tenea (G.N. Tsokas, S. Stampolidis, N. Diamanti, E. Korca, P. Evaggeloglou, E. Fikos and G. Vargemezis)
12:20 - 12:40	O7. Digital Archaeology and Aegean Thrace: A multi-disciplinary approach to the landscape of the Peraia of Samothrace (A. Avramidou, J.C. Donati, N. Papadopoulos, A. Sarris, Chr. Karadimas and Chr. Pardalidou)
12:40 - 13:00	O8. Communication networks in archaeology. The case of the Mycenaean Messenia (G. Malaperdas, A. Sarris and N. Zacharias)
13:00 - 13:20	O9. Between water and land – connecting and comparing underwater, terrestrial and airborne remote sensing techniques (A. Pydyn, M. Popek, Ł. Janowski, A. Kowalczyk, L. Żuk and K. Lewe)
13:20 - 13:40	O10. Landscape reconstruction of the Shuanguaishu Site in the Yellow River of China since 8.000 years (R. Yang, G. Chen, L. Luo, P. Lu, P. Chen and W. Li)
13:40 - 14:00	O11. Remote sensing applied to archaeological site detection. Poblational pattern in right side of Guadalen River (Vilches, Spain) during Roman Empire (A.A.J. Ortiz Villarejo and B.L.M. Gutiérrez Soler)
14:00 - 14:40	Lunch Break
<b>14:40 - 17:00</b>	<b>SESSION 3: Digital applications</b>
14:40 - 15:00	O12. Monitoring of archaeological excavations using photogrammetric techniques (Ł. Miskz, J. Modrzewski, Ł. Wilk, W. Ostrowski and P. Lech)

15:00 - 15:20	O13. Digital Technologies and 3D printing for the communication of Archaeological Discovery: The case of the Early-Archaic wreckage of the Strait of Otranto (B. Davidde Petriaggi and V. Ria)
15:20 - 15:40	O14. New insights into past agriculture: A modern experimental cultivation project that explores past agriculture with the aim of 3D Geometric Morphometrics (A.E.T. Kriti, A. Livarda, H.A. Orengo, I. Mylonas and E. Ninou)
15:40 - 16:00	O15. A computational design workflow towards the establishment of a Digital Twin in historic buildings (S. Dimitriou and O. Kontovourkis)
16:00 - 16:20	O16. Hazards due to drought and extreme rainfall in Heritage Landscapes: An analysis of the last 30 years by satellite big data (M. Moreno, Ch. Bertolín, R. Ortiz and P. Ortiz)
16:20 - 16:40	O17. Obsidian sourcing by combining SEM images and machine learning (M. Coisson, E.S. Olivetti, P. Ansalone, L. Martino and E. Ferrara)
16:40 - 17:00	O18. History Alive (A. Kamara and N.Pachtas)
<b>17:00 - 18:00</b>	<b>POSTER SESSION 1 (in-person presentation)</b>
<b>18:00 - 19:00</b>	<b>SESSION 4a: Metals</b>
18:00 - 18:20	O19. Advantages and limitations of archaeometric analysis of archaeological metals: A focus on electron, proton and neutron techniques for studying silver coins (J.M. del Hoyo-Meléndez, M. Matosz and A. Walanus)
18:20 - 18:40	O20. Neutron techniques employed to study objects from the Wallace Collection (A. Williams)
18:40 - 19:00	O21. Geochemical study of hammerscale, a new tool to understand the iron supply of a workshop (J. Rodier, V. Serneels and B. Gratuze)
<b>19:00 - 20:00</b>	<b>TECHNICAL SESSION</b>
20:00	Welcome Cocktail at the Campus of the University of the Peloponnese

## Friday, October 7

<b>09:00 - 10:40</b>	<b>SESSION 4b: Metals</b>
09:00 - 09:20	O22. Tools and jewels: An analytical study of copper-alloy artefacts from Bronze Age Thassos (N. Nerantzis and S. Papadopoulos)
09:20 - 09:40	O23. Understanding and reproducing cross-craft interaction in the Late Bronze Age Carpathian basin (V. Orfanou, S. Amicone, V. Sava, B. O'Neill, L.E.F. Brown, C. Bruyère and B.P.C. Molloy)
09:40 - 10:00	O24. Identification of the manufacturing process of Sardinian Bronze statuary: A research project through Neutron Tomography (F. Cantini, A. Brunetti, A. Depalmas, A. Fedrigo, M. Morgano, A. Kaestner and F. Grazi)
10:00 - 10:20	O25. Casting, composition and microstructure of Roman bronze: A non-invasive neutron study (F. Grazi, F. Cantini, P. Pallecchi, Brini, S. Agnoletti, A. Patera, G. Rotondi, A. Fedrigo and A. Scherillo)
10:20 - 10:40	O26. Materials procurement. The case of two Late Roman metallurgical sites in Cyprus (A.M. Sdralia, A. Sarris, V. Kassianidou and Th. Rehren)
10:40 - 11:00	Coffee Break
<b>11:00 - 13:40</b>	<b>SESSION 5: Pottery</b>
11:00 - 11:20	O27. Classification of Neolithic pottery clay from Bahçelievler in the northwest Anatolia (S. Sarialtun, E. Fidan and S. Ağaç)
11:20 - 11:40	O28. A study of pottery and obsidians from an Early Neolithic house in the foothills: A case study of the Biskupice Site 18 (Wieliczka Foothills, Southern Poland) (M. Moskal-Del Hoyo, A. Rauba-Bukowska, R. Kenig, M. Roffet-Salque, C. Maule, D. Werra, M. Nowak, A. Czekaj-Zastaeny and M. Korczyńska)
11:40 - 12:00	O29. Shell-tempered pottery: A case study of Tripolye cooking pots (I. Sobkowiak-Tabaka, A. Kurzawska, M. Szczepaniak, M. Grześkowiak, M. Fleszar, A. Diachenko and Y. Levinzon)

12:00 - 12:20	O30. The shell-tempered pottery phenomenon in Neolithic Northeast China – A multidisciplinary approach (P. Sebillaud, P.A. Duval and X. Liu)
12:20 - 12:40	O31. Interpreting pottery production in Roman and late Antique Noricum – an interdisciplinary approach (M. Auer, B. Borgers and M. Daszkiewicz)
12:40 - 13:00	O32. Archaic Corinthian ceramics: preliminary study by optical analysis and SEM/EDS (E. Korca, P. Evaggeloglou and M. Ioannou)
13:00 - 13:20	O33. Preliminary study of east Aegean pottery production and clayey raw materials: The case of Lesbos (A.-M. Pollatou, I. Iliopoulos, A. Hein and E. Kiriati)
13:20 - 13:40	O34. A Neutron Diffraction study of phase alterations during firing of ancient pottery (I.M. Siouris, M. Girkiza, S. Katsavounis and W. Kockelmann)
13:40 - 14:40	Lunch Break
14:40 - 15:40	<b>POSTER SESSION 2 (online presentation)</b>
15:40 - 16:40	<b>POSTER SESSION 3 (online presentation)</b>
16:40 - 19:00	<b>SESSION 6: Glass and glassy materials</b>
16:40 - 17:00	O35. Islamic glazed ceramics in Gharb Al-Andalus (south-western Iberia): An archaeometric study of monochrome honey and bichrome honey and black/brown glazed wares (C.A. Camara, M. Beltrame, S. Gómez Martínez and J. Mirão)
17:00 - 17:20	O36. Chemical composition of Early Medieval arsenic glaze beads as an indicator of the origin of the raw material (R. Czech-Błońska, R. Siuda and E. Miśta-Jakubowska)
17:20 - 17:40	O37. The first trace element and isotope analyses of glasses from the world heritage site of ChoghaZanbil, Iran (O. Oudbashi, J. Henderson, S. Chenery and J. Evans)
17:40 - 18:00	O38. Compositional and provenance of Late Bronze Age glass from Kefalonia, Greece (V. Muros, N. Zacharias and J. Henderson)
18:00 - 18:20	O39. Frattesina glass: New analytical data (J. Henderson, A. Oikonomou, S. Chenery and P. Bellintani)
18:20 - 18:40	O40. Fire and Sand: An archaeometric analysis of the Roman architectonic glass found during the excavation of Lamia's Gardens (M. Parasoglou, L. Medeghini, P. Barrulas and M. Botticelli)
18:40 - 19:00	O41. New data on Late Antique and Early Medieval glass from the Adriatic (E. Gliozzo, F. Giannetti, M. Turchiano and M. Ferri)
19:00 - 20:00	<b>Costa Navarino - International Archaeometry Award Ceremony</b>

## Saturday, October 8

09:00 - 11:40	<b>SESSION 7: Pigments</b>
09:00 - 09:20	O42. Identifying pigments in unsigned panel paintings attributed to Dionysius of Fournà (Th. Mafredas, S. Boyatzis, D. Avramidis, Y. Facorellis, S. Amanatiadis, G. Karagiannis and E. Kouloumpi)
09:20 - 09:40	O43. Revealing the materials and techniques of Post-Byzantine icons through MA-XRF (G.P. Mastrotheodoros, Th. Gerodimos, I. Georvasilis, A. Asvestas, D. Chatzipanteliadis, A. Tzima, A. Likas and D.F. Anagnostopoulos)
09:40 - 10:00	O44. Shellfish purple: Composition, degradation, identification (I. Karapanagiotis, A. Vasileiadou, A. Zotou and M.G. Noura)
10:00 - 10:20	O45. The blue road: Provenance study of azurite samples from historical locations through the analysis of minor and trace elements (S. Capriotti, L. Medeghini, S. Mignardi, M. Petrelli and M. Botticelli)
10:20 - 10:40	O46. A multi-analytical study for the characterization of pigments from an Egyptian artefact of the Late Dynastic Period (V. Guglielmi, C.A. Pini, C.A. Lombardi, V. Comite and P. Fermo)

10:40- 11:00	O47. Macro-Raman-Mapping of artefacts: A novel technique for the study of pigment distributions (A. Rousaki and P. Vandenabeele)
11:00- 11:20	O48. Resonant multiphoton ionization for archaeometry and cultural heritage science (T. Cohen, A. Parejo Vidal, A. Williams, J.A. Berenbeim, S.C. Owens, N. Svadlenak, C. Schimdt Patterson, S. Tyson-Smith, A. Ford, M. Gordon and M.S. De Vries)
11:20- 11:40	O49. AFM PF-QNM and SHG: Two advanced techniques for the study of archaeological textiles and artworks (A. Melelli, J. Beaugrand, F. Jamme, O. Arnould and A. Bourmaud)
11:40 - 12:00	Coffee Break
<b>12:00 - 14:00</b>	<b>SESSION 8: Mortars / Building materials</b>
12:00 - 12:20	O50. Multianalytical characterisation of historic rendering mortars of houses from the Makrygianni excavation (Y. Facorellis, N. Skoutaridis, S. Boyatzis, A. Stefanis and T. Vakoulis)
12:20 - 12:40	O51. Technological investigation of pottery and mortars from the coastal archaeological site of Kolonna Bay in Aegina, Greece (N. Zacharias, P. Kalamara, G. Vlachos, A. Zampetoglou and E. Palamara)
12:40 - 13:00	O52. Non-destructive approaches to painted plaster: Combining photogrammetry and portable X-ray fluorescence spectroscopy (A. Clinch, J. Pakkanen and M.C. Lentini)
13:00 - 13:20	O53. Novel, multifunctional consolidants for the mitigation of gypsum stone deterioration at the Knossos Palace, Crete, Greece (K.D. Demadis, I.E. Grammatikakis and E. Armakola)
13:20 - 13:40	O54. A New aqueous nanolime for eco-friendly and sustainable practice in stone consolidations treatments. The case study of San Francesco all' immacolata church in Ortigia (Italy) (G. Taglieri, V. Daniele, G. Rosatelli, L. Arrizza, O. Spadaro and A. Ministeri)
13:40 - 14:00	O55. How the past can help the future (L. Medeghini, L. Calzolari, S. Capriotti, C. De Vito and S. Mignardi)
<b>14:00 - 14:20</b>	<b>Closing Remarks</b>

## Poster Sessions

### Session 1: DNA / Isotopic analysis

Iberian 4<sup>th</sup> to 2<sup>nd</sup> millennia BCE ambers: A review of its sources and provenance (C.P. Odriozola, J.A. Garrido-Cordero, J.M. Martínez-Blanes, A.C. Sousa, J.C. Duarte, G. Romero-García, D. Sánchez-Gómez and D. Romero-Vera)

Investigating dietary patterns in the ancient colony of Abdera (Aegean Thrace, Greece). Stable isotope analysis ( $\delta^{15}\text{N}$ ,  $\delta^{13}\text{C}$ ) in human bone collagen (A. Georgiadou, A. Zisis, E. Ganiatsou, K.Kallintziand C. Papageorgopoulou)

New histomorphological method for age-at-death on cremated and unburned human bones (P. Bantavanou, E. Valakos, K. Moraitis and C. Papageorgopoulou)

Archaeometric investigation and conservation of an ivory sword hilt from the Derveni Grave B (V. Michalopoulou, Ch. Katsifas and A. Touloumzidou)

### Remote sensing and geophysical analysis

Digital recording of archaeological survey finds and analysis through Geographical Information Systems (K. Sgouropoulos, D. Urem-Kotsou and P. Chrysafakoglou)

When archives don't suffice: The use of Photogrammetry on Kiti Tower, Cyprus (D. Konstantinidou)

Non-invasive investigation of submerged medieval harbour, a case study from the puck lagoon (Ł. Janowski, A. Pydyn and M. Popek)

A GIS-based investigation of the geomorphologic characteristic of Roman forts in UK (Z. Li and F. Dursun)

Sand & stones. Digitisation of the Armyrolakka wall structure within the frames of the Pylos Geoarchaeological Program (N. Zacharias, M. Kylafi, V. Valantou, A. Kazolias, A. Kompoti and V.V. Panagiotidis)

The Pylos Geoarchaeological Program. Archaeometric and technological approaches (N. Zacharias, E. Militsi, M. Kylafi, G. Malaperdas, V. Panagiotidis and E. Mantzana)

## **Digital applications**

Cultural itineraries at the Neoclassical city centre of Piraeus, Attica, through innovative applications of digital technology (E. Kanetaki)

Digital Twin of lost architectural heritage (S. Gunay)

Application of the decision-making model for contemporary art in the case of conservation of digital installations (K. Stoupathis)

Digital museum and the zakros project (G. Argyrou)

The use of Blender software in archaeological documentation and research (J. Stępnik)

Roads of mysteries: The digital documentation of the road networks of three contemporary villages in northern Messenia, Greece with the use of GIS, historical aerial and high-resolution satellite imagery (E. Vallianatou, J.C. Donati and E. Zimi)

Landscapes of myth and digital Cultural Heritage: From ancient tales to modern tourists' needs (D. Tsifaki, Y. Mourthos, N. Michailidou, D. Sarafopoulou, A. Vacalopoulou and G. Stainhaouer)

The Importance of Digital Video in Archaeology within the Twenty First Century (R. Scott)

At the edge of a city. The digital storyline of the Brontochion Monastery of Mystras (V.V. Panagiotidis, V. Valantou, A. Kazolias and N. Zacharias)

Echoes – Building the osteobiographies of ancient Thessalonians (A. Aidonis, E. Ganiatsou, P. Bantavanou, A. Souleles, M. Korelidou, G. Georgiou, I. Kompatsiaris, S. Protopsalti, S. Tzevreni, C. Alagialoglou, M. Mavrokostidou, V. Kartsiakli, C. P. Vraza and C. Papageorgopoulou)

A virtual museum visit in the Teloglion Fine Arts Foundation, Thessaloniki, Greece (Ch. Achilles, D. Tzetzis, S. Koltsakidis, K. Tsongas, V. Gkonos, M. Babatsikos and N. Moussiopoulos)

The temple at Kardaki in Corfu. Ancient metric system, typology, 3d digital reconstruction (D. Andrikou)

Graph analysis on street network in a web browser (J. Modrzewski, P. Zachar, A. Kubicka-Sowińska, Ł. Misk and W. Ostrowski)

Application of a stand-alone RTI measuring system with integrated camera in Cultural Heritage digitisation (L. Wilk, M. Klebowski, M. Beldyga, W. Ostrowski and P. Lech)

Development of an Open Lab for the Virtual preparation of the archaeological and palaeontological finds in the Museum of Petralona, Chalkidiki, Greece (Ch. Achilles, D. Tzetzis, E. Tzimtzimis, A. Athanasiou, A. Darlas, E. Karkazi, P. Tzioumakis, S. Poulis, I. Aspiotis, V. Chatziparadeisi and D. Bochtis)

Digital 3D facial approximation of the Petralona skull. Methodological issue and applications (A. Aidonis, D. Tzetzis, Ch. Achilles, A. Athanasiou, A. Darlas and C. Papageorgopoulou)

On-site presentation using augmented reality (AR) technologies: The case study of Beşiktaş (T. Uçarci, U. Muşkara, G. Ortak and R. Asal)

Advanced digitization methods for the 3D visualization and interpretation of cultural heritage: The Sphinx of the Naxians at Delphi (A. Psalti, M.C. Tsakoumaki, C. Mamaloukaki, M. Xinogalos, N. Bolanakis and E. Maravelakis)

## **Metals**

Early signs of Mycenaean craftsmen's innovation or initiative: The results of a geometric morphometric analysis of the shaft grave bronze swords of Mycenae (D.C.M. Brown)

Art and Technique of Cuojiyin: A Scientific Analysis on two Belt Hooks from Luoyang of Eastern Zhou Dynasty (Y. Shi, Y. Wen, W. Li and C. Yang)

New set-up for Neutron Resonance Capture Analysis (NRCA) and Neutron Resonance Transmission Imaging (NRTI) for Cultural Heritage at the Italian Neutron Experimental Station INES (A. Scherillo, G. Marcucci, A. Fedrigo, F. Grazi and D. Raspino)

The alloying and metalworking technology of bronze votive objects from two sanctuaries of Tegea, Arcadia, Greece, 9<sup>th</sup>-7<sup>th</sup> c. BCE (N.K. Kladouri, A.G. Karydas, V. Orfanou, K. Tsampa, V. Kantarelou, A.V. Karapanagiotou and N. Zacharias)

The armour of the Thracian warriors – An archaeometrical approach (B. Zlateva, T. Stoyanov, D. Lesigyarski and V. Bonev)

Preliminary characterisation of metallurgical slag from Pistyros, N. Greece (I.M. Siouris, N. Nerantzis, F. Katsanevakis, S. Katsavounis and S. Papadopoulos)

Chemical analysis of bronze votives from the Minoan peak sanctuary at Ayios Yeoryios sto Vouno, Kythera (Aik. Panagopoulou, A.G. Karydas, E. Banou and N. Zacharias)

Exploring the correlation between the metallic substances used on the gildings of Russian icons from the Benaki Museum collection and their artistic backgrounds (A. Boura, H.V. Farmakalidis and A. Sampatakos)

Conservation abreast Restoration: The use of pXRF for the final decision (A.P. Panagopoulou, A. Mandaliou, V. Papazikou, G. Rousouneli and M. Roggenbucke)

Precious metals from Augusta Raurica – Archaeological and archaeometrical investigations using non-invasive X-rays (I.A. Megatli-Niebel)

What jewellery were people wearing in the Middle Byzantine period? A preliminary technological and analytical study (G. Logothetou, S. Metaxas, N.K. Kladouri and N. Zacharias)

Identification of corrosion phenomena on Roman iron finds from the battlefield of Kalkriese Osnabrück (J. Materlik, A. Jeberien and S. Burmeister)

Amulets in a hoard from the Baltic coast in the era of Viking colonization. A unique hoard from Dramino-Piaski (Poland) in the light of provenance and technological research of goldsmithing art (E.A. Miśta-Jakubowaska, W. Duczko, R. Czech Błńska, A.B. Kowalska, R. Mathur and A.M. Gójska)

The K $\beta$ /K $\alpha$  intensity ratios as a tool of examination and thickness measurements of surface silver enrichment (A.M. Gójska, E.A. Miśta-Jakubowaska, K. Kozioł, A. Wasilewski and R. Diduszko)

## **Pottery**

Classification of oil lamps at Kocaeli Archaeological Museum using Element Analysis and Chromaticity Modelling (Ü. Muşkara, A. Kiliç, O. Tunçelli and S. Gedük)

Technical Examination of the Tiles used in Kaboud Dome belong to Seljuk period in Maragheh, Iran (P. Soleimani and A. Mohtasham)

Spectroscopic technique for the characterization of the potsherds from Tigranakert in Artsakh (Y. Keheyan, G. Lanterna, H. Petrosyan and T. Vrtanesova)

Imported pottery at the cemetery of Perati in light of current results of Neutron Activation analysis (B. Lis, H. Mommsen and J.H. Sterba)

Sounds from the PAST: a case study of a neolithic clay whistle (I. Sobkowiak-Tabaka, A. Kurzawska, R. Gogol, A. Gruszczyńska-Ziółkowska and M. Krueger)

Ancient Thouria lagynos: An organic residue case study (D. Brink, S. Boyatzis and N. Zacharias)

Tracing technology and provenance of Hellenistic-Roman fine wares from Ancient Elis, Greece: A preliminary study using SEM/EDS and micro-XRF analysis (E. Triantafyllidi, A.G. Karydas, K. Tsampa, E. Zimi and Nikolaos Zacharias)

Adhesive based gap-filling materials: The future of ceramic stabilisation and losscompensation? (A. Gürschner Vidart)

Ways to find the inner self: The case of cross-disciplinary pottery studies in Pheneos (R.N. Klöckl)

An insight into the suitability of West Cretan clayey raw materials for ceramic manufacture in Chania area, Greece: Preliminary results (M.-V. Antonopoulou, V. Xanthopoulou, E. Nodarou, P. Avramidis, Y. Papadatos, D. Papoulis and I. Iliopoulos)

Chemical and mineralogical analysis to evaluate post-depositional diagenesis of the shell-tempered ware identified in Eastern Romania (F. Mătău, I.-G. Breabăn, M. Pintilei, O. Chiscan, A.-L. Vasiliu and A. Stancu)

Firing conditions of archaeological ceramic specimens characterized by Magnetic Susceptibility measurements (D. Lesigarsky, N. Jordanova, B. Zlateva, E. Vasileva and V. Bonev)

## **Glass**

Correlative microscopy for analysing archaeological samples – a study of blue glazed vessel attributed to Chai Kiln 950-1000 AD (T. Salminen, M. Hannula, Æ. Barjesteh, R. Gradmann, W. Hang, M. He, A. Hein, D.V. Hill, A. Lüttge, R. Ponte, L. Petit and M. Zhang)

Obsidian blades from Kurdistan (Iraq): A petrological approach for provenance studies (M. Bernabale, A.M. Conte, L. Medeghini, L. Peyronel and C. De Vito)

Insight into glass archeometry through replication techniques (C.H. Bellows, B. Topper, L. Greiner, A. Powers, A.G. Clare and D.C. Möncke)

A Multi-analytical approach for non-destructive quantitative investigation of ancient mosaic glasses (G. Marcucci, Z. Kasztovszky, I. Harsányi, A. Scherillo, R. Smith and D. Di Martino)

Chemical characterization of glass tesserae from Zeyrek Mosque (Pantokrator Monastery) in Istanbul (O. Ekinci, A. Akin Akyol and Ü. Özgümüş)

Non-CU Red glass from the palace of Mystras: An unknown technological tradition (E. Palamara, D. Palles, E.I. Kamitsos and N. Zacharias)

Inclusions in Late Bronze Age glass from Ialysos, Rhodes: Evidence for the use of a third primary glass raw material (I. Worrall, J. Henderson, A. Meek and T. Kiely)

Beyond the golden sky: Technical identification of Lajvardina ceramic from Rayy and Alamut, Iran (M. Yazdani)

The efficacy of laser cleaning in the restoration of a historical stained-glass from Cuenca Cathedral, Spain (E.M. Maingi, M.P. Alonso Abad, L.A. Angurel, G.F. de la Fuente, R. Chapoulie and St. Dubernet)

Micro-residues on quartz tools: The example of Bronze Age Toumba, Thessaloniki (O. Palli, I. Nazlis, S. Andreou, S. Triantafyllou and G. Kourtessi-Philippakis)

## **Pigments**

Application of the Raman Spectroscopy on Experimental Samples for studying behavior of natural binders in Coptic Periods (A. Medhat)

Sampling ancient polychromy for pigment provenance research (A.S. Rodler, C. Brøns, N. Tepe, T. Hofmann, C. Koeberl, R. Frei, A. Van Ham-Meert and G. Artioli)

The APPEAR project at the KHM: Multitechnological research on three mummy-portraits of the KHM (K. Uhlir, B. Vak, R. Iannaccone, M. Laubenberger and M. Griesser)

A non-destructive assessment of the 13<sup>th</sup> century red church wall paintings (G.P. Mastrotheodoros, A. Asvestas, T. Gerodimos, V. Papadopoulou, E. Filippaki, D.F. Anagnostopoulos and K.G. Beltsios)

Investigation and design of a non-destructive research protocol for the study of easel paintings (E. Kouloumpi and N. Zacharias)

Tip Enhanced Laser Desorption to combine microscopy and spectroscopy measurements on complex heterogeneous nanometer-scale systems (T. Cohen, A.D. Parejo Vidal, M. Gordon and M. de Vries)

Human blood and bird egg proteins identified in the red paint covering a 1,000-year-old gold mask from Peru (E. Pires, L. da Costa Carvalho, I. Shimada and J. Mc Cullagh)

Pigment identification in the work of the painter Nikolaos Gyzis “The Poet at the Fountain” applying non-destructive spectroscopic techniques and a multispectral camera (E. Christopoulou, N. Laskaris and Th. Ganetsos)

Digital Microscopy coupled to Image Processing and Hyperspectral Imaging for the non-invasive evaluation of optical effects in historical miniatures: A first approach (S. Bottura-Scardina, C. Miguel, F.T. Barata and A.N. Alves)

Analytical studies on Achaemenian pigment lumps from Persepolis, Iran (O. Oudbashi, A. Shekofteh, Z. Chahardoli and H. Fadaei)

Identification of lake pigments on Greek Post-Byzantine icons (G.P. Mastrotheodoros, Z. Nikolaidou, A. Vasileiadou, I. Karapanagiotis and K.G. Beltsios)

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MA-XRF investigation of a 17<sup>th</sup> century icon by the renowned painter Poulakis (G.P. Mastrotheodoros, T. Gerodimos, A. Asvestas, A. Tzima, A. Euthimiadou, V. Papadopoulou and D.F. Anagnostopoulos)

Analytical investigation of the 16<sup>th</sup> century St Demetrios church wall paintings (Klimatia village, Epirus, Greece) (G.P. Mastrotheodoros, E. Vlachou, K.G. Beltsios, E. Felippaki, S. Boyatzis, M. Chatzidaki, V. Papadopoulou and Y. Facorellis)

Archaeometrical investigation of pigments of the iconostasis from Saint Georgios church of Sohos (M. Tsiapali, S. Vivdenko, H. Tsaggalidis, A. Vasileiadou and A. Konstanta)

Preliminary results of a study on the color palette of portrait paintings in Greece during the second half of the 19<sup>th</sup> and the beginning of the 20<sup>th</sup> century (S. Kesidis, A. Kaminari, A. Alexopoulou and N. Zacharias)

Beyond the Art Work. Case study of some historical oil paintings (Hagar Ezzat)

## **Mortars /Building materials**

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Quantification of the impact of climate change on historical monuments in Greece (I. Markantonis, D. Vlachogiannis, A. Sfetsos and I. Karatasios)

A Superhydrophobic and oleophobic composite coating for the protection of stone-built cultural heritage (P. Manoudis, Z. Chughtai, V. Tsiridis, S.P. Evgenidis, I. Karapanagiotis, Th.D. Karantsios and P.K. Spathis)

Provenance studies of stone tools from the Mesolithic Kouvaras cave in Attica (K. Theodorakopoulou, F. Mavridis, A. Papadea, M. Perraki, G. Polymeris, N. Zacharias, E. Palamara and C.D. Athanassas)

The analysis of floor mosaic mortar substrates of Ancient Messene, southern Peloponnese, Greece. First results on raw materials identification and technological characteristics (E. Mantzana, E. Zimi, I. Iliopoulos and N. Zacharias)

Structural and compositional variations of archaic marbles (I.M. Siouris, M. Kokkaliari, S. Katsavounis and S. Papadopoulou)

Beyond bleaching in OSL mortar dating: Statistical data treatment on Northern Italy samples (M. Saleh, G.S. Polymeris, L. Panzeri, E. Tsoutsoumanos, G. Ricci, M. Secco, G. Artioli, S. Dilaria, M. Martini and A. Galli)

Preliminary study of particulate pollutants affecting monuments in different atmospheric backgrounds (D. Mitsos and N. Zacharias)

Design parameters and criteria for the conservation mortars of the “Hall of the Double Axes” (“King’s Megaron”) at the Minoan Palace of Knossos (I. Karatasios, A. Michalopoulou, E. Katsaveli, V. Kilikoglou, E. Politaki and E. Kavoulaki)