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NARNIA

NEW ARCHAEOLOGICAL RESEARCH NETWORK FOR
INTEGRATING APPROACHES TO ANCIENT MATERIAL STUDIES



University of Cyprus

Archaeological Research Unit

INTERNATIONAL CONFERENCE

**INTERDISCIPLINARY STUDIES
OF ANCIENT MATERIALS
FROM THE MEDITERRANEAN**

Nicosia, 17-19 September 2014
University of Cyprus



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A B S T R A C T S

The international conference *Interdisciplinary Studies of Ancient Materials from the Mediterranean* is the concluding act of the multi-partner, interdisciplinary research network entitled *New Archaeological Research Network of Integrating Approaches to ancient material studies (NARNIA)*. NARNIA is a Marie Curie Initial Training Network which falls under the People programme of FP7 (Grant agreement no.: 265010). The project provided the ground for the collaboration of six academic institutions, one research centre and two enterprises. These are the University of Cyprus, which is the coordinating institution, Vrije Universiteit Brussel, Université Paris-Ouest, Hashemite University, University College London, University of Sheffield, the National Centre for Scientific Research “Demokritos”, G. M. EuroCy Innovations Ltd and Thetis Authentics Ltd. The NARNIA network is a collaboration of researchers who are engaged in the holistic study of ancient materials to facilitate a better understanding of the strategies associated with the production and the consumption of material culture and its impact on the historic and ancient environment. The *raison d'être* of this well-structured research network was to improve the career prospects for employment of our twenty fellows by enabling them to develop lab-based skills needed for the study of ancient materials. At the same time the NARNIA network has been contributing to the history and archaeology of the eastern Mediterranean basin, a region of great historical, cultural and geopolitical significance.

In order to achieve this aim, the partner institutions have organised an impressive series of research and training activities. During its four-year lifespan, NARNIA offered 26 training courses in six different countries (Belgium, Cyprus, France, Greece, Jordan and the UK), on the interdisciplinary study of ancient pottery, glass, metals, architectural decoration and building materials, as well as dating and the palaeo-environment, and the application of portable X-ray fluorescence spectroscopy in the field of archaeology. All NARNIA training courses were open to researchers outside the network, and the 16 Early Stage Researchers and four Experienced Researchers recruited by the NARNIA partnership had the opportunity to communicate and interact with scholars and researchers from different disciplines and research backgrounds.

This has been an adventurous and memorable journey for us, and we cannot think of a better way to complete it than the organisation of this international conference, where we can present our work outside our network and meet old and new friends for the establishment of future contacts. We hope that this will be an important occasion for new and established researchers to share their research in an international forum and to exchange ideas on the latest interdisciplinary approaches, analytical techniques and methodologies for the integrated study of ancient materials, technologies and the environment.

Professor Vasiliki Kassianidou,
NARNIA Project Coordinator
&
Dr Maria Dikomitou-Eliadou
NARNIA Project Manager

Archaeological Research Unit, University of Cyprus
Nicosia, September 2014



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Organising committee

Prof. Vasiliki Kassianidou (NARNIA project coordinator)
Archaeological Research Unit, University of Cyprus

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Archaeological Research Unit, University of Cyprus

Scientific Committee

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Dr Fadi Balaawi, Hashemite University, Jordan

Dr Yannis Bassiakos, National Centre for Scientific Research “Demokritos”, Greece

Dr Peter Day, University of Sheffield, UK

Dr Maria Dikomitou-Eliadou, University of Cyprus, Cyprus

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Prof. Marcos Martín-Torres, University College London, UK

Prof. Demetrios Michaelides, University of Cyprus, Cyprus

Mr George Milis, G.M. EuroCy Innovations Ltd, Cyprus

Prof. Karin Nys, Vrije Universiteit Brussel, Belgium

Dr George Papasavvas, University of Cyprus, Cyprus

Prof. Thilo Rehren, University College London Qatar, Qatar

Wednesday, 17th September 2014

8:15 - 9:00 Registration

9:00 - 9:30 Welcome addresses

- Prof. Constantinos Christofides, Rector, University of Cyprus
- Dr Despina Pilides, Acting Director, Department of Antiquities, Cyprus
- Prof. Vasiliki Kassianidou, NARNIA project coordinator, Department of History and Archaeology, University of Cyprus

Session 1: The interdisciplinary study of ancient ceramics

Chair: Dr Vassilis Kilikoglou, National Centre for Scientific Research "Demokritos", Greece

9:30 - 9:50 *Ceramic analysis and critical mass: New evidence for longevity of major pottery production centres in the Aegean*
Peter M. Day

9:50 - 10:10 *Sustainable data management in the study of ancient materials*
Anno Hein and Vassilis Kilikoglou

10:10 - 10:30 *Un-dusting the foundations of compositional analysis approaches of ceramic archaeological data*
Elisavet Charalambous*

10:30 - 10:50 *Impact resistance of archaeological ceramics: The influence of firing and temper*
Noémi S. Müller*, George Vekinis and Vassilis Kilikoglou

10:50 - 11:10 *The story of a soil that became a glaze: Chemical and macroscopic fingerprints*
Artemi Chaviara* and Eleni Aloupi-Siotis

11:10 - 11:40 **Coffee Break**

Session 2: The interdisciplinary study of ancient ceramics

Chair: Dr Eleni Aloupi-Siotis, THETIS Authentics Ltd, Greece

11:40 - 12:00 *Cooking pot fabric recipes: An interdisciplinary study of Cypriot cooking pots of the Late Bronze Age*
Maria Dikomitou-Eliadou, Artemis Georgiou and Athanasios K. Vionis

12:00 - 12:20 *Regional variation in Late Cypriot pithos production: Preliminary results from the petrographic analysis*
Eleni Nodarou and Priscilla Keswani

12:20 - 12:40 *Leave no mudstone unturned: Geochemical provenancing reveals potters' choices and interactions in Late Bronze Age Cyprus*
Christina Makarona*, Priscilla Keswani, Eleni Nodarou, Ariane Jacobs, Nadine Mattielli, Karin Nys and Philippe Claeys

12:40 - 13:00 *Mapping Early Iron Age Cypro-Phoenician networks: An optical mineralogy study of Phoenician Bichrome Ware in Cyprus*
Ayelet Gilboa and Yuval Goren

13:00 - 13:20 *Late Roman amphorae from Cyprus: Investigating production and distribution in the eastern Mediterranean*
Anthi Kaldeli, Vassilis Kilikoglou, Anno Hein, Demetrios Michaelides and David Williams

13:20 - 14:20 **Lunch Break**

14:20 - 15:00 **Poster session I** (poster nos. 1-10)

Session 3: Ancient and historical glass production and trade

Chair: Prof. Thilo Rehren, University College London Qatar

15:00 - 15:20 *A spatial analysis of the socio-economics of the production of luxury goods at Amarna*
Anna Kathrin Hodgkinson

15:20 - 15:40 *Glass production in the Neo-Assyrian Empire*
Katharina Schmidt

15:40 - 16:00 *Miniature glass portrait sculpture in the ancient Mediterranean: Egyptian origins and Graeco-Roman developments*
Sara E. Cole

16:00 - 16:20 *"Fruits seem more beautiful than they actually are if they are floating in a glass bowl" (Plinius) - Egyptian glass of the first millennium AD: An archaeological and scientific approach*
Daniela Rosenow and Thilo Rehren

16:20 - 16:50 **Coffee Break**

Session 4: Ancient and historical glass production and trade

Chair: Prof. Karin Nys, Vrije Universiteit Brussel, Belgium

16:50 - 17:10 *Shedding light onto Cypriot glass industry: Consumption and distribution patterns*
Andrea Ceglia*, Peter Cosyns, Wendy Meulebroeck, Karin Nys, Herman Terrynt and Hugo Thienpont

17:10 - 17:30 *Composition, distribution, and use of glass in the 6th century AD in the Lower Danube region: Recognising changes – understanding the change*
Anastasia Cholakova*

17:30 - 17:50 *From the Mediterranean to the Libyan Sahara. Chemical analyses of Garamantian glass*
Chloë N. Duckworth and David J. Mattingly

20:30 **Conference dinner**

18th September 2014

8:50 - 9:00 Opening comments

Session 5: Copper metallurgy across the Mediterranean

Chair: Dr George Papasavvas, University of Cyprus, Cyprus

9:00 - 9:20 *Copper production on the South coast of Late Bronze Age Cyprus*
Lente Van Brempt*

9:20 - 9:40 *Examining the metallurgical ceramics from Late Bronze Age Kition*
Demetrios Ioannides*

9:40 - 10:00 *A diachronic study of Cypriot copper alloy artefacts*
Andreas Charalambous*

10:00 - 10:20 *Seeing the forest for the trees: Assessing technological variability in ancient metallurgical crucible assemblages*
Frederik Rademakers* and Thilo Rehren

10:20 - 10:40 *An archaeomagnetic study of major slag deposits in the central Timna valley*
Ilana Peters, Erez Ben-Yosef and Lisa Tauxe

10:40 - 11:10 **Coffee break**

Session 6: Dating techniques and the palaeo-environment

Chair: Dr Yannis Bassiakos, National Centre for Scientific Research "Demokritos", Greece

11:10 - 11:30 *Optically stimulated luminescence of Timna mines: A method for dating ancient mining activity*
Craig Smitheram, Erez Ben-Yosef, Naomi Porat and Galina Faershtein

11:30 - 11:50 *Geoarchaeology or how to set the archaeological story straight*
Annita Antoniadou

11:50 - 12:10 *Luminescence dating and the palaeoenvironment in SE Cyprus*
Evangelos Tsakalos*

12:10 - 12:30 *Luminescence dating and the palaeo-environment in SW Peloponnesus*
John Christodoulakis*

12:30 - 12:50 *Luminescence chronology of Quaternary coastal deposits of North Evoikos Gulf (central Greece)*
Maria Kazantzaki, Yannis Bassiakos, Theodora Rondoyanni,
Evangelos Tsakalos* and Ioannis Christodoulakis*

12:50 - 13:50 **Lunch break**

13:50 - 14:30 **Poster session II** (poster nos. 11-22)

Session 7: The interdisciplinary study of ancient ceramics

Chair: Dr Maria Dikomitou-Eliadou, University of Cyprus, Cyprus

14:30 - 14:50 *Exploring pottery technological variability and its significance during the Final Neolithic - Early Bronze Age transition at Phaistos, Crete*
Roberta Mentessana*, Peter M. Day, Vassilis Kilikoglou and
Simona Todaro

14:50 - 15:10 *Production, exchange and consumption of pottery from LH IIIB to LH IIIC early periods in the Saronic Gulf*
William Gilstrap* and Peter M. Day

15:10 - 15:30 *An interdisciplinary and integrative study of ancient ceramics: Aegean transport stirrup jars*
Halford Haskell

15:30 - 15:50 *Ceramic workshops in BA mainland Greece: A preliminary study of the archaeological record*
Anastasia Portari

15:50 - 16:20 **Coffee break**

Session 8: The interdisciplinary study of ancient ceramics

Chair: Dr Peter M. Day, University of Sheffield, UK

16:20 - 16:40 *Chemical and petrographic interactions: A micro-scale investigation into local production on Bronze Age Kythera*
Evangelia Kiriati and Myrto Georgakopoulou

16:40 - 17:00 *Re-examining the late Neolithic - Early Bronze Age transition in Lower Nubia (Egypt) through integrated ceramic petrography and technology studies*
John Gait

17:00 - 17:20 *An interdisciplinary study of 8th - 7th c. BC transport amphorae: New light on early Greek commerce*
Maria Roumbou, Evangelia Kiriati, Xenia Charalambidou,
Noémi S. Müller*, Antonis Kotsonas and Manthos Bessios

19th September 2014

8:50 - 9:00 Opening comments

Session 9: pXRF application in Archaeology

Chair: Dr Roger Doonan, University of Sheffield, UK

9:00 - 9:20 *Scientific studies and the archaeological process: The implications of science in the field*

Louis Olivier Lortie, Derek Pitman and Roger Doonan

9:20 - 9:40 *Writing artefact biographies: The contribution of high frequency non-destructive HHpXRF analyses*

Lenore Thompson and Roger Doonan

9:40 - 10:00 *New methods and technology for space exploration: The use of HHpXRF geochemical data in technological studies*

Benoit Proulx and Roger Doonan

10:00 - 10:20 *pXRF analysis of flint tools changing through time in a single Neolithic neighbourhood*

Kathleen Bennallack

10:20 - 10:40 *XRF Analysis of Silver Alloys from the EM I - MM IIA Cemetery of Petras, Crete*

Alessandra Giumlia-Mair, Susan C. Ferrence, Philip P. Betancourt and James D. Muhly

10:40 - 11:00 *Iron Age silver hoards from southern Phoenicia: Surface analysis using pXRF*

Tzilla Eshel, Ayelet Gilboa, Sariel Shalev and Naama Yahalom-Mack

11:00 -11:30 **Coffee break**

Session 10: Interdisciplinary assessments of architectural decoration

Chair: Prof. Demetrios Michaelides, University of Cyprus, Cyprus

11:30 - 11:50 *Coloured materials used in Elephantine: Evolution and permanence from the Old Kingdom until the Roman Period*

Sandrine Pagès-Camagna and Dietrich Raue

11:50 - 12:10 *Pigments and colourants: An inside look at the painted decoration of the Macedonian funerary monuments*

Lydia Avlonitou*

12:10 - 12:30 *The combined application of Raman and portable X-ray fluorescence spectroscopy for the study of mosaic glass tesserae from Delos, Greece*

Francesca Licenziati* and Thomas Calligaro

12:30 - 12:50 *Technology of the Early Christian wall mosaics of Cyprus*

Olivier Bonnerot*

- 12:50 - 13:10 *State of conservation of the architectural structures and mortars characterisation of the castle of Azraq, Jordan*
Marta Tenconi* and Fadi Bala'awi
- 13:10 - 13:30 *The technology of structures in Cyprus during LBA and possible historical implications*
Konstantinos Giannakos

13:30 -14:30 Lunch break

Session 11: Copper metallurgy across the Mediterranean

Chair: Prof. Marcos Martínón-Torres, University College London, UK

- 14:30 - 14:50 *Copper metallurgy of the Early Bronze Age in Thassos, North Aegean*
Nerantzis Nerantzis, Yannis Bassiakos and Stratis Papadopoulos
- 14:50 - 15:10 *A new approach for investigating the role of metals in Late Bronze Age societies on Crete*
Lena Hakulin
- 15:10 - 15:30 *Some aspects of copper production in antiquity considering the furnace types and production techniques*
Damir Rumenjak
- 15:30 - 15:50 *Egyptian bronzeworking practices in Late Bronze Age Canaan*
Naama Yahalom-Mack
- 15:50 - 16:10 *The transition from bronze to iron: A view from a smith's hoard from Early Iron Age Megiddo*
Adi Eliyahu-Behar

16:10 -16:40 Coffee break

Session 12: Copper metallurgy across the Mediterranean

Chair: Prof. Vasiliki Kassianidou, University of Cyprus, Cyprus

- 16:40 - 17:00 *Votive bronzes in Late Period Egypt: Where did the raw metals come from?*
Aurelia Masson-Berghoff
- 17:00 - 17:20 *Copper in the pre-Islamic Sahara – a Mediterranean provenance?*
Aurélie Cuénod and David J. Mattingly
- 17:20 - 17:40 *Copper alloy consumption in a Tyrrhenian medieval town: The case of Leopoli-Cencelle (Italy)*
Mainardo Gaudenzi Asinelli* and Marcos Martínón-Torres

17:40 -18:00 Closing Remarks

20th September 2014

Conference excursion: Visits to Mitsero mining area and the UNESCO World Heritage Byzantine Churches of Panayia tou Araka at Lagoudera village and Timios Stavros tou Agiasmati at Platanistasa village

List of poster presentations

The interdisciplinary study of ancient ceramics

1. *Eretrian ceramic products through time: Investigating the early history of a Greek metropolis*
Xenia Charalambidou, Evangelia Kiriati, Noémi S. Müller*, Myrto Georgakopoulou, Sylvie Müller Çelka, Tobias Krapf
2. *Moulding expressions of culture: A technological and compositional study of the Hellenistic and Roman terracotta figurines from the House of Orpheus in Nea Paphos, Cyprus*
Maria Dikomitou-Eliadou, Giorgos Papantoniou, Vassilis Kilikoglou, Eleni Aloupi, and Demetrios Michaelides
3. *A diachronic study of pottery production and supply at the Bronze Age town of Palaikastro, East Crete*
John Gait, Evangelia Kiriati, Noémi S. Müller* and Carl Knappett
4. *Organic residue analysis of pottery from the dye workshop at Alatsomouri-Pefka, Crete*
Andrew J. Koh, Philip P. Betancourt, Marie Nicole Pareja, Thomas M. Brogan and Vili Apostolakou
5. *A diachronic investigation of 'local' pottery production and supply at the sanctuary of Zeus, Mount Lykaion, Arcadia-Peloponnese*
Georgia Kordatzaki, Evangelia Kiriati, Noémi S. Müller*, Mary E. Voyatzis, David G. Romano, Susan Petrakis, Jeannette Forsén, Gullog Nordquist, Emilio Rodriguez-Alvarez, Sarah Linn
6. *Amphorae production in Early Hellenistic Mesambria Pontica*
Totko Stoyanov
7. *Archaeological and archaeometric data about the Moschos' production of roof-tiles and architectural terracotta on the West Pontic coast*
Daniela Stoyanova
8. *Organic residue analysis of Roman amphorae excavated in Beirut, Lebanon*
Marshall Woodworth

9. *Pottery production and exchange at the Heraion, Samos, during the late third millennium BC: First steps in the study of technology and provenance*
Sergios Menelaou, Ourania Kouka and Peter M. Day
10. *Integrating chemical data of archaeological ceramics into existing databases: the new WD-XRF facility at the Fitch Laboratory of the British School at Athens*
Noémi S. Müller*, Anno Hein, Myrto Georgakopoulou, Evangelia Kiriati, Vassilis Kilikoglou

Ancient and historical glass production and trade

11. *Analysis of faience beads from Early Bronze Age contexts at Tell es-Safi/Gath, southern Levant*
Adi Eliyahu-Behar
12. *Reusing, repairing, remelting: Reconsidering ancient glass recycling and what that means for material analyses*
Victoria A. Sainsbury

Copper metallurgy across the Mediterranean

13. *Metal workshops at the settlement of Kastro-Palaia, Volos, Greece: Tin bronze versus arsenical copper*
Eleni Asderaki-Tzoumerkioti and Evangelia Skafida
14. *The Early - Middle Bronze Age basalt anvils of Pyrgos Mavroraki: Their use, context and related tools*
Maria Rosaria Belgiorno
15. *Greek coinage in context: The characterisation and provenance of silver from Greek colonies in the western Mediterranean 5th - 3rd centuries BC*
Thomas Edward Birch, Fleur Kemmers, Sabine Klein and Michael Seitz, Heidi Höfer
16. *Precious metals in the eastern Mediterranean as a measure of changing economic and political realities*
Amir Golani
17. *Deteriorating effects of the metal threads on embroideries. Technical and analytical study on archaeological textiles*
Mohamed Marouf
18. *Metallographic characterisation of two ancient Roman copper-based metal fragments*
Olga Papadopoulou and Panayiota Vassiliou

Interdisciplinary assessments of architectural decoration

19. *Towards an ancient technological heritage in theatre: Exploring links between the Abydos Mysteries (Egypt) and the Great Dionysia (Greece)*

Santos Gláucio Machado

20. *Rusafa-Sergiupolis / Rusafat-Hisham, Syria. The decoration systems of churches and palaces in the Late Antique and Early Islamic periods, 5th to 9th century AD: Material, technology and design*

Ines Oberhollenzer

Dating techniques and the palaeo-environment

21. *Site formation processes and use of space at the PPNA village of Ayios Tychonas - Klimonas in Cyprus. The micromorphology of mudbrick materials construction, a geoarchaeological approach*

Pantelitsa Mylona

pXRF application in Archaeology

22. *AR.CHI.MIN.: A multidisciplinary project for the study of the ancient mining heritage*

Luisa Dallai and Alessandro Donati

