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# Πληροφοριακό Δελτίο της Ελληνικής Αρχαιομετρικής Εταιρείας

**- Απρίλιος 2026 -**

**Avoid injustice.**

*(Cleobulus)*

## Newsletter of the Hellenic Society of Archaeometry

**- April 2026 -**

**Nr. 301**

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Plant-ash glass in Natronland: A review of the use of plant-based fluxes in glassmaking from the 1st to the 9th century CE in Europe and the Mediterranean basin, by David J. Govantes-Edwards, Peter Cosyns, Patrick Degryse, Chloe Duckworth, Ian C. Freestone, Marcel Frenken, Caroline Jackson, Artemios Oikonomou, Thilo Rehren, Jose Alberto Retamosa, Daniela Rosenow, Andrew Shortland and Martin Zimmermann ..... **page 28**

Reconstructing Bronze Age dietary habits utilising stable isotope analysis at Kültepe, central Türkiye, by Kameray Özdemir, Benjamin Irvine, Handan Üstündağ, Gundula Müldner, Turhan Doğan, Furkan Kulak and Fikri Kulakoğlu ..... **page 29**

Beyond the center: foodways in Bronze Age Koumasa, Crete, by Kyriaki Tsirtsis, Symeon Gkinoudis, Diamantis Panagiotopoulos, Juan José García-Granero, Evi Margaritis ..... **page 30**

Absolute dating of the Late Bronze Age palace at Agios Vasileios: Insights from dendrochronology and radiocarbon methods, by A. Christopoulou, N. Karadimas, Y. Özarslan, T. Ważny ..... **page 31**

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## ΣΥΝΕΔΡΙΑ - CONFERENCES/WORKSHOPS

# INTERNATIONAL CONFERENCE ON INNOVATION IN ART RESEARCH AND TECHNOLOGY - INART 2026, 7 - 11 SEPTEMBER 2026, FUNCHAL, MADEIRA, PORTUGAL

Dear Colleagues,

We are pleased to inform you that the deadline for abstract submission to the International Conference on Innovation in Art Research and Technology -**INART 2026** has been extended until **15th of April 2026**.

We warmly invite you to submit your contribution and to share this call with colleagues and researchers who may be interested.

The next edition of INART will take place from 7 to 11 September 2026, in Funchal, Madeira (Portugal). The programme will begin on 7 September with a workshop on Digital Techniques and In-Situ Physical & Chemical Analysis, followed by the INART 2026 Conference from 8 to 11 September 2026.

INART 2026 aims to bring together researchers, conservation professionals, curators, heritage scientists, and technology developers working at the intersection of cultural heritage and scientific innovation. The conference will provide an interdisciplinary platform for the presentation and discussion of recent research, methodological advances, and emerging technological tools applied to art and cultural heritage.

Further information regarding submission guidelines and conference details is available on the conference website: <https://inart2026.madeira.gov.pt/>

Follow us in social media:

[https://www.facebook.com/profile.php?id=61586794871169&locale=pt\\_PT](https://www.facebook.com/profile.php?id=61586794871169&locale=pt_PT)

[https://www.instagram.com/inart\\_2026/](https://www.instagram.com/inart_2026/)

For any additional information, please contact us at: [inart2026@uevora.pt](mailto:inart2026@uevora.pt)

We look forward to welcoming you to Madeira for the next edition of the International INART Conference.

Kind regards,

INART2026 Organizing Committee

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Conference dates: 7–11 September 2026

📍 Location: Funchal, Madeira, Portugal

🌐 Website and submission details: <https://inart2026.madeira.gov.pt/>

✉ Contact: [inart2026@uevora.pt](mailto:inart2026@uevora.pt)

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## **45<sup>th</sup> INTERNATIONAL SYMPOSIUM ON ARCHAEOLOGY, 18-22 MAY 2026, TORINO, ITALY**

Dear All,

the **registration deadline** is approaching. Do not forget to [register](#) and submit the proof of payment for your fee by **April 15th!**

**Guidelines** and **templates** for oral presentations and posters are now available on the [website](#).

We invite **poster presenters** to read more about the [Martin Aitken](#) and [R.E Taylor](#) **posters prizes** on the website: applications are open!

**All posters will be displayed in an exclusive location in the heart of the city**, where they will be discussed during the poster sessions, and will also be available **on a dedicated online platform** to ensure access at any time for both in-person and online participants. Details about both the physical and online poster sessions will be available soon.

Even if you are not presenting a poster or giving a talk, **you are still very welcome to join ISA 2026 either in person or online**. Share this invitation with colleagues and friends to ensure that this unique opportunity to explore the new frontiers of the archaeometric research is not missed!

Kind regards,

The ISA 2026 Organising Committee

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# **CONFERENCE MA-XRF 2026, THURSDAY SEPTEMBER 29<sup>TH</sup> AND FRIDAY OCTOBER 2<sup>ND</sup> 2026, PARIS**

<https://maxrf2026.sciencesconf.org/>

This workshop to be held in Paris, within the [French National Museum of Natural History](#), between Thursday September 29<sup>th</sup> and Friday October 2<sup>nd</sup> 2026 aims to bring together researchers interested in MA-XRF and complementary imaging techniques for the study of cultural and natural heritage, including Reflectance Imaging Spectroscopy (RIS), Luminescence Imaging Spectroscopy (LIS), X-Ray Diffraction Mapping (XRD), Confocal XRF (CXRF), and more.

Discussions will focus on the latest advancements in instrument development, data evaluation methods, and their applications in case studies. A particular emphasis will be placed on the integration of MA-XRF with other techniques in multi-modal analytical approaches.

Oral presentation will be 20 min with questions

The posters will be presented in digital format. The different topics will be introduced through flash presentations of ~3-4 minutes.

Friday morning, October 2<sup>nd</sup>, will be devoted to the specific issues facing museum curators.

We are looking forward to your numerous contributions !

## Local Organizing Committee :

Oulfa Belhadj, Centre de Recherche sur la Conservation (CRC), Paris, France

Lucile Brunel-Duverger, Centre de Recherche et de Restauration des Musées de France (C2RMF), Paris, France

Thomas Calligaro, Centre de Recherche et de Restauration des Musées de France (C2RMF)/Lab-BC, Paris, France

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Laurence de Viguerie, Laboratoire Archéologie Moléculaire et Structurale Paris (LAMS), Paris, France

## International Scientific Committee :

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Anikó Bezur, Yale University, USA

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Thomas Calligaro, C2RMF, France  
Silvia Centeno, Metropolitan Museum of Art, USA  
John Delaney, National Gallery of Art Washington, USA  
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Francesca Gabrieli, Rijksmuseum, Netherlands  
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Karen Trentelman, Getty Conservation Institute, USA

\*\*\*\*\*



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DE LA CULTURE**

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**CENTRE DE  
RECHERCHE  
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[www.c2rmf.fr](http://www.c2rmf.fr)

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**PREHISTORIC TEXTILE TOOL KITS: FROM  
THE BALTIC TO THE MEDITERRANEAN**  
**13TH APRIL 2026, FACULTY OF  
ARCHAEOLOGY, UNIVERSITY OF  
WARSAW, KRAKOWSKIE PRZEDMIEŚCIE**  
**26/28 SZKOŁA GŁÓWNA/THE MAIN  
SCHOOL**

on-line:

<https://uw-edu-pl.zoom.us/j/94756240277?pwd=UKM4p4AhSNGVY2JNUf2b7VH2OkIgbU.1#success>

**Programme**

9:30-9:50 Welcome from the organisers

9:50-10:10 Tools related to textile production at the Early Neolithic site of La Draga (Spain) (5300- 4700 aC) - Miriam de Diego (Higher School of Design and Visual Arts of Catalonia), Raquel Piqué (Autonomous University of Barcelona), Antoni Palomo (Autonomous University of Barcelona), Xavier Terradas (Mila & Fontanals Institute, Archaeology of Social Dynamics Unit), Ignacio Clemente (Mila & Fontanals Institute, Archaeology of Social Dynamics Unit)

10:10-10:30 Late Neolithic Textile Tool Kits from the Western Polish Lowlands: Problems of Identification and Interpretation – Monika Kaczmarek (Faculty of Archaeology, University of Warsaw)

10:30-10:50 Missing tools - missing textiles? The case of the Mierzanowice culture (Early Bronze Age) – Kinga Winnicka (Faculty of Archaeology, University of Warsaw)

10:50-11:10 Discussion

11:10-11:30 Coffe break

11:30-11:50 Beyond the Functionality: Minoan Textile Tools from the Site of Sissi on Crete, or How to Approach Dispersed, Varied, yet Numerous Evidence – Agata Ulanowska (Faculty of Archaeology, University of Warsaw)

11:50-12:10 Counting whorls, counting hands? Reframing spindle whorl assemblages in Bronze Age Cyprus - Giulia Muti (Institute of Archaeological Sciences, University of Bern)

12:10-12:30 The Many and the Few: Making Sense of Pre- and Protohistoric Textile Tool Kits in Southern Iberia (2nd and 1st millennia BCE) - Francisco B. Gomes (School

of Arts and Humanities of the University of Lisbon; UNIARQ – Centre for Archaeology of the University of Lisbon)

12:30-13:10 Discussion

13:10-14:30 Lunch break

14:30-14:50 Greetings from the Eastern Hallstatt area – common and strange textile tools in use - Julia Fileš Kramberger (Faculty of Humanities and Social Sciences, Department of Archaeology, University of Zagreb), Karina Grömer (Natural History Museum Vienna)

14:50-15:10 Textile tools from the Late Iron Age site of Kale – Krševica (southern Serbia) - Selena Vitezović, Ivan Vranić (Institute of Archaeology, Belgrade, Serbia)

15:10-15:30 Textile Toolkits in Funerary Contexts of the Wielbark Culture - Magdalena Przymorska-Sztuczka (Archaeological Museum in Biskupin)

15:30-15:50 Connections between Spinning, Weaving, and Aquatic Environments Based on Archaeological and Ethnographic Evidence: Symbolism or Pragmatism? - Patrycja Godlewska (Institute of Archaeology, Nicolaus Copernicus University in Toruń)

15:50-16:10 Discussion and session closing

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**5<sup>TH</sup> INTERNATIONAL CONFERENCE ON  
TRANSDISCIPLINARY MULTISPECTRAL  
MODELLING AND COOPERATION FOR THE  
PRESERVATION OF CULTURAL HERITAGE  
CULTURAL HERITAGE AT THE  
FOREFRONT OF TRANSFORMATION,  
14-16 DECEMBER, ATHENS, GREECE, CALL  
FOR PAPERS**

Dear Colleague,

Following the significant interest and numerous requests from the international scientific community, I would like to personally invite you to further shape the conference's program by submitting your proposals for Panel Discussions. These panels aim to foster transdisciplinary dialogue and showcase emblematic applications, research results, and methodologies within a holistic approach.

Furthermore, recognizing that you may also wish to contribute your own latest research, the updated Important Dates are as follows:

**Extended Abstract Submission Deadline: April 7th, 2026**

**Panel Discussion Proposal Submission Deadline: April 23rd, 2026**

**Notification of Abstract Acceptance: April 23rd, 2026**

For panel proposals, please submit the panel title, a brief description of the theme, and the list of proposed speakers by the indicated deadline. For abstract submissions, please follow the guidelines available on our website.

This landmark 5<sup>th</sup> anniversary conference, coinciding with ten years since the historic opening of the Holy Tomb in Jerusalem, continues to invite innovative research and international cooperation for the sustainable preservation of cultural heritage.

I look forward to receiving your valuable contributions and welcoming you to Athens on 14–16 December 2026.

For further information and updates, please visit: [tmm-ch.com](http://tmm-ch.com)

The President of the International TMM\_CH Conference  
Emer. Prof. A. Moropoulou

**ΘΕΣΕΙΣ ΕΡΓΑΣΙΑΣ/ΥΠΟΤΡΟΦΙΕΣ –  
JOB VACANCIES/FELLOWSHIPS**

**PHD OPPORTUNITY – DEVELOPMENT OF  
MACRO-XRF ANALYSIS OF 3D CULTURAL  
HERITAGE OBJECTS, FACULTY OF  
PHYSICS AND APPLIED COMPUTER  
SCIENCE AT AGH UNIVERSITY OF  
KRAKÓW, IN COLLABORATION WITH THE  
NATIONAL MUSEUM IN KRAKÓW,  
LABORATORY OF ANALYSIS AND NON-  
DESTRUCTIVE INVESTIGATION OF  
HERITAGE OBJECTS (LANBOZ)**

The Faculty of Physics and Applied Computer Science at AGH University of Kraków, in collaboration with the National Museum in Kraków, Laboratory of Analysis and Non-Destructive Investigation of Heritage Objects (LANBOZ), invites applications from highly motivated candidates for a PhD project to be carried out within the framework of a doctoral scholarship competition at AGH University.

**Project description**

The PhD research will focus on the development and optimization of macro-X-ray fluorescence (Macro-XRF) analysis for three-dimensional cultural heritage objects. The project addresses methodological challenges related to the acquisition, processing, modeling, and interpretation of spatially resolved XRF data from complex 3D geometries.

Cultural heritage objects such as polychrome sculptures and archaeological artifacts present non-ideal, heterogeneous, and geometry-dependent systems that require advanced physical modeling and computational approaches. The project will treat these objects as real-world test cases for developing new analytical and data-processing strategies.

Research topics may include (but are not limited to):

Macro-XRF data acquisition strategies for non-planar and complex surfaces

Correction methods related to geometry, self-absorption, and variable excitation conditions

Spectral deconvolution and elemental mapping in 3D contexts

Integration of Macro-XRF data with 3D documentation techniques

Algorithm development for visualization and interpretation of large datasets

Previous relevant publications:

1.1. Łach, B., Fiutowski, T., del Hoyo-Meléndez, J.M. *et al.* Application of a Full-Field macro-XRF imaging spectrometer to non-invasive investigation of elemental composition in three-dimensional artworks. *npj Herit. Sci.* 13, 58 (2025). [doi.org/10.1038/s40494-025-01646-6](https://doi.org/10.1038/s40494-025-01646-6)

2.2. Łach, B.; Fiutowski, T.; Koperny, S.; Krupska-Wolas, P.; Lankosz, M.; Mendys-Frodyma, A.; Mindur, B.; Świentek, K.; Wiącek, P.; Wróbel, P.M.; et al. Application of Factorisation Methods to Analysis of Elemental Distribution Maps Acquired with a Full-Field XRF Imaging Spectrometer. *Sensors* 2021, 21, 7965. [doi.org/10.3390/s21237965](https://doi.org/10.3390/s21237965)

3.3. Wróbel, P.M, Fiutowski, T., Koperny, S., Lankosz, M., Łach, B., Mendys-Frodyma, A., Mindur, B., Świentek, K., Wiącek, P., Dąbrowski, W. Modelling of vignetting effects in full-field X-ray fluorescence imaging system based on pinhole optics, *Spectrochimica Acta Part B: Atomic Spectroscopy*, 171 (2020) 105934. [doi.org/10.1016/j.sab.2020.105934](https://doi.org/10.1016/j.sab.2020.105934).

### **Research environment**

The PhD candidate will be formally enrolled at AGH University of Kraków and supervised by a Professor from the Department of Particle Interactions and Detection Techniques at the Faculty of Physics and Applied Computer Science.

The research will be conducted in close collaboration with LANBOZ, providing access to:

Advanced Macro-XRF instrumentation,

Unique cultural heritage objects,

An interdisciplinary research environment combining physics, chemistry, conservation science, and museum practice.

### **Candidate profile**

Applicants should have:

A Master's degree in Physics, Applied Physics, Computer Science, Applied Informatics, Engineering, or a related discipline,

Strong interest in experimental methods, data analysis, and computational modeling,

Programming skills (e.g., Python, MATLAB, C/C++ or similar),

Motivation to work in an interdisciplinary setting bridging physical sciences and cultural heritage research.

Prior experience with X-ray techniques, imaging, or spectroscopy is an advantage but not required.

### **Funding and selection**

This PhD position is subject to selection in a competitive doctoral scholarship (stipendium) procedure conducted by AGH University of Krakow, in accordance with applicable university regulations. Admission to the PhD program and receipt of the scholarship are contingent upon a positive decision of the selection committee.

The minimum (gross) amount of the doctoral scholarship, funded by subsidies, is:

37% of the professor's remuneration – up to the month in which the interim evaluation was carried out, i.e. PLN 3.466,90; 57% of the professor's remuneration - after the month in which the interim evaluation was carried out, i.e. PLN 5.340,90.

Higher doctoral scholarship is granted to doctoral students with a disability certificate and/or the certificate to in Article 5 and Article 62 of the Act of 27 August 1997 on professional and social rehabilitation and employment of disabled people. Such a person receives a doctoral scholarship in the amount increased by 30%.

The amount of the minimum basic salary for a professor at a public university specified in the regulation is PLN 9.370,00.

The doctoral scholarship is not subject to income tax. Instead, doctoral students studying at doctoral schools and receiving a doctoral scholarship are covered by mandatory pension and accident insurance.

### **How to apply**

Interested candidates are encouraged to contact the prospective supervisors to discuss the project scope prior to formal application. Formal application must follow AGH University Doctoral School procedures and deadlines.

More information about the AGH Doctoral School can be found following the link below: [sd.agh.edu.pl/en](http://sd.agh.edu.pl/en)

Please send your motivation letter, CV, and copies of your BSc and MSc diplomas by May 8, 2026 to:

Dr. hab. inż. Bartosz Mindur, Prof. AGH University of Kraków

[mindur@agh.edu.pl](mailto:mindur@agh.edu.pl)

Dr. Julio M. del Hoyo-Meléndez, Head of Laboratory. Laboratory of Analysis and Non-Destructive Investigation of Heritage Objects (LANBOZ), Muzeum Narodowe w Krakowie

[jdelhoyo@mnk.pl](mailto:jdelhoyo@mnk.pl)

\*\*\*\*\*

\*Julio M. del Hoyo-Meléndez

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## **HERITAGE SCIENTIST COORDINATOR** **(RICHS)**

Status: Fixed Term Contract

Salary: £37,498 Per Annum

Days/Hours of work: Full time, 36 hours per week. 5 year fixed-term contract.

Closing date: 7th April 2026

Interview Date: w/c 13th April 2026

About the role and about you

We are a team of people who love and look after six of the most wonderful palaces in the world. We create space for spirits to stir and be stirred. We care for thousands of historic objects, many of them in their original royal setting. We are looking for someone with a real interest in our history, the buildings and their contents, who can help conserve them to the standard they deserve: the best.

This role delivers the ongoing provision of the Historic Royal Palaces (HRP) REsearch Vault for HEritAge Science COllections (REVEAL) facilities, funded by the Arts and Humanities Research Council (AHRC) Research Infrastructure for Conservation and Heritage Science (RICHeS) programme. You will coordinate access to our facilities for external researchers in line with HRP and RICHeS procedures, to enable new initiatives and collaborations. The position involves engaging with the RICHeS Heritage Science Data Service (HSDS) and other professional groups to ensure our work supports the FAIR data principles. The role is also responsible for the management and future updates of the REVEAL samples and data collections.

As a key member of the Heritage Science team, you will contribute to research and conservation activity in line with the Conservation & Collection Care, and Collections Management (CCC-CM) annual operating plan and HRP's Research Strategy, and the needs of major projects from building conservation to public-facing interpretation and exhibitions. The position also involves applying digital documentation methodologies and advanced data processing to provide evidence supporting the understanding and conservation of historic buildings and collections. Additionally, it demands a pro-active communication attitude to explain the value of the REVEAL facility to generalist and specialist audiences.

Benefits include:

Hybrid working

Enhanced holiday entitlement

Generous Employers Pension Contributions (up to 11%)

Annual Pay reviews & Bonuses

Critical Illness Cover & Life Assurance

Family friendly policies and benefits

Staff discounts and free entry to all palaces

You will have undergone training in a scientific discipline and postgraduate degree in heritage science, digital archaeology or a relevant subject and have experience in digital

documentation of cultural heritage (e.g. technical imaging, photogrammetry, 3D laser scanning) as well as experience and knowledge on how to organise, curate and archive research data efficiently and systematically using FAIR principles. An awareness of technical and analytical methods applied to the study, conservation and display of a wide range of objects is essential. We are looking for an adaptable and creative problem-solver who can work independently. Enthusiastic and able to communicate effectively, you will have experience in the dissemination of information, both written and spoken to pro-actively explain and promote heritage science.

This position is based at Hampton Court Palace, but you may be required to travel to our other palaces on occasion. The role involves occasionally working at heights.

Apply here: [Heritage Scientist Coordinator \(RICHeS\) - Historic Royal Palaces](#)

\*\*\*\*\*

Dr CONSTANTINA VLACHOU-MOGIRE ACR, FIIC  
Heritage Science Manager



Historic Royal Palaces | Apt 37 Hampton Court Palace | KT8 9AU  
+44(0)203166 6458 | +44(0)7920138854  
[hrp.org.uk](http://hrp.org.uk)

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\*\*\*\*\*

## **RESEARCH FELLOW IN QUANTITATIVE ANCIENT MATERIALS AND CULTURES, DEPARTMENT OF LAND OF ISRAEL AND ARCHAEOLOGY, ARIEL UNIVERSITY**

**Application Deadline: 15 April 2026**

Duration: Can be extended up to 3 years (Post-doc level)

Contact: [shaigo@ariel.ac.il](mailto:shaigo@ariel.ac.il)

The Department of the Land of Israel and Archaeology at Ariel University (<https://www.ariel.ac.il/wp/ioa-au/>) is seeking a research fellow at post-doc level for at least 3 years in the fields of computational archaeology, digital history, or digital humanities.

As a DH researcher on the team, you will play a pivotal part in driving interdisciplinary research, and integrating computational methods alongside archaeology and history. The department is geared towards expanding its interdisciplinary workspace among different humanities researchers and between humanities researchers and data scientists, which develops and enriches both worlds. The appointed scholar will work directly under Dr. Shai Gordin, the head of the Digital Past Lab (<https://digitalpasts.github.io/>).

Salary will be decided based on academic qualifications. Final decisions are subject to resource availability, consideration of the Dean of the Faculty of Social Sciences and Humanities and the Rector.

The position can begin as soon as a suitable candidate is found with some flexibility for their timeline.

The application deadline is 15 April 2026. Suitable candidates will be invited for interviews by 22 April 2026.

For any inquiries, email Shai Gordin <[shygordin@gmail.com](mailto:shygordin@gmail.com)>.

### **RESPONSIBILITIES**

- Conduct innovative research by applying computational methods and data science techniques within archaeology and history. Develop, test, and implement new methodologies and tools that can aid in the analysis, interpretation, and visualisation of ancient data.
- Provide methodological support to other scholars in the department through consultations as well as active collaboration on research projects that result in high-end publications, or develop together new research avenues that will lead to grant funding.
- Initiate annual workshops and conferences on computational archaeology and history.
- Support pedagogical efforts in the department in the field of digital humanities.

- Take a leading role in a project on early Jewish Script and its computational typology together with researchers at the department.

## **REQUIREMENTS**

- Ph.D. in a relevant field (e.g., Digital Humanities, Archaeology, History, Classics, Computer Science, Data Science).
- Good ability to understand, utilise and innovate on state-of-the-art machine learning algorithms and statistical modelling.
- Some experience applying computational methods in humanities research.
- Strong background in Python with experience in Data & ML packages.
- Ability to advise and collaborate with researchers on software engineering tools and practices.
- Excellent communication and interpersonal skills, with the ability to work effectively with diverse groups of people.
- Autonomous and accountable with a proactive approach and desire to develop further professionally.
- Experience in teaching digital humanities abilities is an advantage.

## **SUBMISSION MATERIALS**

- Letter of application.
- CV with list of publications.
- Research plan (2 pages).
- Samples of 2 published works (joined authorship are allowed if the applicant is first author; forthcoming publications are also applicable).
- 3 letters of recommendation.

Send all files as a single PDF via email to Shai Gordin (shygordin@gmail.com) by 15 April 2026.

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## **ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS**

# **RAMAN SPECTROSCOPY FOR CULTURAL HERITAGE WEBINAR**

Tuesday, April 14, 2026 | 1:00–2:30 pm EDT  
Free for AIC members and students; \$20 for non-members.  
[Register now.](#)

Are you new to infrared and Raman spectroscopy, or looking for a refresher before the IRUG workshop and conference in October? Participate in the second of a three-part series organized by the [American Institute of Conservation's Research and Technical Studies](#) specialty group about vibrational spectroscopy.

The final webinar will take place on May 14 and will explore FTIR spectroscopy in greater depth. More details and a registration link will be sent closer to webinar dates. All sessions will be recorded and available to registered participants. For assistance with registration, please contact [meeting@culturalheritage.org](mailto:meeting@culturalheritage.org).

This series is offered in advance of the IRUG16 Conference & Workshop at Winterthur Museum, Garden & Library (October 6–9, 2026).

*The Infrared and Raman Users Group (IRUG) is a not-for-profit 501(c)(3) organization with scientific and educational purposes, registered in Pennsylvania, US.*

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## **ΕΠΙΣΤΗΜΟΝΙΚΟ ΣΕΜΙΝΑΡΙΟ:** **«ΣΥΣΤΗΜΑΤΑ ΓΕΛΩΝ ΣΤΗ ΣΥΝΤΗΡΗΣΗ** **ΈΡΓΩΝ ΤΕΧΝΗΣ»**

Πανεπιστήμιο Δυτικής Αττικής  
Πανεπιστημιούπολη Άλσους Αιγάλεω  
**22-24 Ιουνίου 2026**

Φίλες και Φίλοι,

Με ιδιαίτερη χαρά σας ανακοινώνουμε τη διεξαγωγή του εντατικού επιστημονικού σεμιναρίου: **«Συστήματα Γελών στη Συντήρηση Έργων Τέχνης».**

Το Εργαστήριο ARTICON του Πανεπιστημίου Δυτικής Αττικής, εστιάζει στις πλέον σύγχρονες και ασφαλείς μεθόδους καθαρισμού επιφανειών, συνδυάζοντας τη θεωρητική κατάρτιση με την πρακτική εφαρμογή. Το σεμινάριο θα παρέχει την απαραίτητη τεχνογνωσία για την αποτελεσματική χρήση σύγχρονων γελών (gels) και υγρών μέσων καθαρισμού έργων ζωγραφικής (σε καμβά/ξύλο/χαρτί).

Ιδιαίτερη έμφαση δίνεται στην υιοθέτηση εφαρμογή βιώσιμων πρακτικών, ενώ παράλληλα, το εντατικό σεμινάριο προωθεί την εκμάθηση εύχρηστων μεθόδων εξέτασης για την επιστημονική τεκμηρίωση και αξιολόγηση των επεμβάσεων.

Αίτηση εγγραφής και αναλυτικές πληροφορίες μπορείτε να δείτε στην ιστοσελίδα <http://articon.lab.uniwa.gr> ή να επικοινωνήσετε μαζί μας στη διεύθυνση [articon@uniwa.gr](mailto:articon@uniwa.gr)

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## **CALL FOR ABSTRACTS FOR A JOURNAL** **SPECIAL ISSUE ON** **ARCHAEOLOGICAL METALLURGY**

Dear colleagues,

The journal *Metallography, Microstructure, and Analysis (MMA)* will publish a special issue on Archaeological Metallurgy in 2027. This issue of *MMA* aims to gather innovative research and cutting-edge studies related to archaeological metallurgy and the historical use of metals and alloys. The articles will also align with the journal's broad scope of metallographic and microstructural analysis and materials characterization.

Dr. Patricia Carrizo, National Technological University, Mendoza Regional Faculty (Argentina), Dr. Peter Northover, University of Oxford (retired) (United Kingdom), Dr. Omid Oudbashi, University of Gothenburg (Sweden), Mr. Joseph Paul Mitchell, PCC Revert Group, Greenville Metals (United States), and Dr. Joshua Mueller, Michigan Technological University (United States) will serve as guest editors. All are members of the ASM Archaeological Metallurgy Committee. This will be the third special issue of *MMA* sponsored by the committee; the previous ones were published in April 2023 and August 2025.

Interested authors are strongly encouraged to submit an abstract to Dr. Patricia Carrizo ([patricia.carrizo@frm.utn.edu.ar](mailto:patricia.carrizo@frm.utn.edu.ar)), Dr. Peter Northover ([peter.northover@retired.ox.ac.uk](mailto:peter.northover@retired.ox.ac.uk)), Dr. Omid Oudbashi ([omid.oudbashi@gu.se](mailto:omid.oudbashi@gu.se)), Mr. Joseph Paul Mitchell ([josephpaulmitchell@gmail.com](mailto:josephpaulmitchell@gmail.com)), or Dr. Joshua Mueller ([muellerj@mtu.edu](mailto:muellerj@mtu.edu)) for consideration and comment prior to preparation of a full manuscript.

Abstract submissions are due by **May 1, 2026**.

The manuscript submission deadline is **August 13, 2026**.

Sincerely,

Scott

\*\*\*\*\*

Scott D. Henry (he/him)  
Director of Content and Publishing  
Liaison to ASM Technical Committees  
ASM International  
[scott.henry@asminternational.org](mailto:scott.henry@asminternational.org)  
[www.asminternational.org](http://www.asminternational.org)

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# **APPLICATIONS FOR THE ADVANCED MASTERS IN STRUCTURAL ANALYSIS OF MONUMENTS AND HISTORICAL CONSTRUCTIONS (20TH EDITION)**

Dear Colleague,

Please find below information about the Advanced Master Course in Structural Analysis of Existing Buildings, Monuments and Historical Constructions.

I kindly invite you to disseminate this information to anybody who could be interested in applying.

\*\*\*\*\*  
**APPLICATIONS FOR THE ADVANCED MASTERS IN STRUCTURAL ANALYSIS OF MONUMENTS AND HISTORICAL CONSTRUCTIONS**

Applications for the Advanced Master in Structural Analysis of Monuments and Historical Constructions are open up to May 20, 2026. This is the leading international course on conservation of heritage structures, winner of the 2017 European Union Prize for Cultural Heritage "Europa Nostra", funded by the European Commission during 10 consecutive years, and a unique opportunity to meet people from all over the world. Do not miss this opportunity to join the other 500 alumni from 77 countries that graduate in the last 18 years and be a part of this great worldwide network of experts!

This Master Course is organized by a Consortium of leading European Universities/Research Institutions in the field, composed by University of Minho (coordinating institution, Portugal), the Technical University of Catalonia (Spain), the Czech Technical University in Prague (Czechia), the University of Padua (Italy) and the Institute of Theoretical and Applied Mechanics of the Czech Academy of Sciences (Czechia).

The course combines the most recent advances in research and development with practical applications. A significant number of scholarships, ranging from 4,000 to 13,000 Euro, are available to students of any nationality.

Please find full details on the MSc programme, as well as electronic application procedure, in the SAHC website [www.msc-sahc.org](http://www.msc-sahc.org)

Visit also the SAHC blog <http://blog.msc-sahc.org> and [www.linkedin.com/school/sahcmasterscourse](http://www.linkedin.com/school/sahcmasterscourse)

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Yours sincerely,

Paulo B. Lourenco

Course Coordinator  
Editor of the International Journal of Architectural Heritage: Conservation, Analysis, and Restoration

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Check out the books resulting from the SAHC Master Programme  
Finite Element Analysis for Building Assessment: Advanced Use and Practical Recommendations

Publisher: Routledge  
More info: link<<https://www.routledge.com/Finite-Element-Analysis-for-Building-Assessment-Advanced-Use-and-Practical/Lourenco-Gaetani/p/book/9781032228396>>  
Historic Construction and Conservation: Materials, Systems and Damage

Publisher: Routledge  
More info: link<<https://www.crcpress.com/Historic-Construction-and-Conservation-Materials-Systems-and-Damage/Roca-Lourenco-Gaetani/p/book/9780367145743>>

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## **INVITATION TO THE 2ND MICADAS USERS' WORKSHOP – UCI CAMPUS, SEPTEMBER 9– 10, 2026**

Dear MICADAS Community and Friends,

We are pleased to invite you to the 2nd MICADAS (MINI CARBON DATING SYSTEM) Users' Workshop, co-organized by the Woods Hole Oceanographic Institution (WHOI), the University of Ottawa (uOttawa) and the University of California, Irvine (UCI). The workshop will be held on the UCI campus on September 9–10, 2026.

About the Workshop - This workshop is designed to deepen participants' understanding of the MICADAS spectrometer and its peripherals, going beyond manufacturers' manuals and standard online resources. It is open to the broader MICADAS community, as well as users of related instruments, including:

EA-GIS, CHS-GIS, or Cracker-GIS;  
EA-AGE3; or  
EA-IRMS-AGE3

Who Should Attend? Attendance is intended for individuals who currently have a MICADAS or related instrument at their institution, or who are actively planning to acquire one. Attendees will be expected to contribute by sharing best practices, recent advances, successes, and challenges related to their spectrometer and peripherals.

Join the MICADAS Google Group - If you are not yet a member of the MICADAS Google Group, we encourage you to join by following these three simple steps:

Visit Google Groups: <https://groups.google.com/my-groups>  
Search for "MICADAS"  
Click "Ask to Join"

Registration & More Information - For further details and to register for the workshop, please contact: Prof. Claudia Czimczik – [czimczik@uci.edu](mailto:czimczik@uci.edu)

We look forward to a productive and collaborative event!

Warm regards,

Claudia Czimczik (UC Irvine) – [czimczik@uci.edu](mailto:czimczik@uci.edu)  
Guaciara dos Santos (UC Irvine) – [gdossant@uci.edu](mailto:gdossant@uci.edu)  
Susan Q. Lang (WHOI) – [sqlang@whoi.edu](mailto:sqlang@whoi.edu)  
Roberta Hansman (WHOI) – [rhansman@whoi.edu](mailto:rhansman@whoi.edu)  
Christine Prior (University of Ottawa) – [cprior@uottawa.ca](mailto:cprior@uottawa.ca)

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**ΝΕΕΣ ΕΚΔΟΣΕΙΣ – NEW PUBLICATIONS**  
**ARCHAEOMETALLURGY OF IRON MEANS**  
**OF PRODUCTION AND PROCESSES FROM**  
**THE ORIGINS TO THE INDUSTRIAL**  
**REVOLUTION, BY MARCO CIMA**

First edition 1991

Second edition 1996

Third edition essentially digital with complete revision of the texts developed within the activities of the Museo Archeologico del Canavese - May 2024

English digital edition January 2025

Publisher: Edizioni Nautilus Torino

Page numbers: 270

**Book presentation**

The distinctly Italian tendency to avoid historical summaries to avoid falling into the “trap” of creating a work that risks being neither exhaustive nor precise has been courageously overcome by Marco Cima in this reconstruction of the material systems and production processes of iron from its origins to the Industrial Revolution. The overall framework of the volume is European – albeit for the first time, the scattered hints of a history of iron production in Italy are presented in an organic matter – and its diachronic scale of examination leads one to think of a history of iron production in Italy are presented in an organic manner — and its diachronic scale of examination leads one to think of a history of extractive and metallurgical techniques that is detached from social contexts. Conversely, the risk of an “evolutionary” reading of technologies has been largely avoided: the systematic use of archaeological sources alongside written sources has played a crucial role in capturing the details of the typological transformations of furnace structures and various techniques, as well as the chronological overlaps in differentiated social contexts.

Cima’s contribution merits recognition for reaching into the narrative of indirect iron production, which is explored in depth as it enters the 18th century, providing historians - and especially archaeologists — with an essential tool to place the various production processes that precede and follow each stage of processing, thereby presenting the complexity of the interrelations between territory and forge.

The overall reconstruction is systematically articulated by subject, equipping non-specialists with the necessary tools to gain a very clear picture of the historical dynamics of production processes, while also enabling scholars to interpret or reinterpret the material or written sources they are working with.

The publication of this volume comes at a time of renewed interest in historiography regarding the themes of technology history and a resurgence in archaeological studies on production topics. This is an area where the Italian tradition is significantly disadvantaged compared to the European reference framework; one need only consider

the recent French historical literature, contrasted with the scant number of pre-industrial ceramic or glass production centres investigated in our country, let alone the substantial silence that has characterized the last five years regarding themes of extractive and metallurgical activities.

In my view, the volume on the archaeology of iron constitutes an important contribution that not only provides us with an updated synthesis of what has been elaborated thus far on the subject but also allows us to properly assess and highlight the value of the material evidence with which our territory is rich. I am particularly thinking of the growing interest in the problems of industrial archaeology and the design of archaeological-mining and metallurgical parks, where often only the monumental phases of the Industrial Revolution are considered, disregarding the less recent production phases and the entire ecosystem constituted by the mining complexes — still extant today, but often threatened by material quarries or destroyed by reckless dumping — and by woodland economies.

Therefore, Cima offers a history of techniques where the social context is not marginalized, and where synthetic analysis does not detract from a rich and functional iconographic apparatus, thus effectively and comprehensively responding to a demand generated by an ever-increasing need to read the past through integrated interpretative frameworks that allow for the combination of scientific knowledge, material remains and written sources.

† Riccardo Francovich  
(full professor of Medieval Archaeology at the Siena University)  
September 1991

This volume is a translated revised edition of the work of the same title published in 1991, which enjoyed considerable success. It is presented here with the necessary additions and updates resulting from new insights gained over three decades of research, with the aim of offering the public an archaeological manual on iron production systems. This book is the translation of 'Archeologia del Ferro 2024'. The volume is available exclusively in digital format via the Academia.edu portal.

**Please visit the site:**

**[https://www.academia.edu/145526714/ARCHAEOLOGICAL MEANS OF PRODUCTION AND PROCESSES FROM THE ORIGINS TO THE INDUSTRIAL REVOLUTION?email\\_work\\_card=view-paper](https://www.academia.edu/145526714/ARCHAEOLOGICAL_MEANS_OF_PRODUCTION_AND_PROCESSES_FROM_THE_ORIGINS_TO_THE_INDUSTRIAL_REVOLUTION?email_work_card=view-paper)**

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# **AN ISOTOPIC OVERVIEW OF DIETARY HABITS AND SUBSISTENCE PRACTICES IN THE AEGEAN WORLD, BY BENJAMIN IRVINE**

Front. Environ. Archaeol., Volume 4 - 2025  
Sec. Archaeological Isotope Analysis  
<https://doi.org/10.3389/fearc.2025.1525822>

## **Abstract**

This study provides a broad overview of human dietary habits and subsistence practices across time in the Aegean World (defined in the East by the coastal littoral of western Anatolia, Crete to the South, and eastern mainland Greece in the West). This was done principally through the collation and examination of previously published stable carbon and nitrogen isotope ratios ( $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  values) from human bulk bone collagen. The sites/populations examined in this study date from the Neolithic to the Late Byzantine periods; ca. 6000 BC to the early 16th century AD. Broadly speaking, the stable isotope values demonstrate general consistency diachronically, although a slight and gradual increase in  $\delta^{13}\text{C}$  values over time is observed. The  $\delta^{15}\text{N}$  values are also broadly similar diachronically, with the exception of the Classical (and to a lesser extent Hellenistic and Byzantine) periods which have noticeably higher  $\delta^{15}\text{N}$  values than the preceding and following periods. Interestingly, and perhaps unexpectedly, there are no clearly observable differences between the sub-regions of the Aegean World (i.e., East Aegean, Crete, West Aegean). The observed findings would, therefore, suggest broadly similar dietary habits and subsistence practices in the Aegean World from the Neolithic period onwards, perhaps pointing toward dietary habits and subsistence practices being a further facet of connectivity in the region.

Please visit the site: <https://www.frontiersin.org/journals/environmental-archaeology/articles/10.3389/fearc.2025.1525822/full>

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**PLANT-ASH GLASS IN NATRONLAND: A  
REVIEW OF THE USE OF PLANT-BASED  
FLUXES IN GLASSMAKING FROM THE 1ST  
TO THE 9TH CENTURY CE IN EUROPE AND  
THE MEDITERRANEAN BASIN, BY DAVID J.  
GOVANTES-EDWARDS, PETER COSYNS,  
PATRICK DEGRYSE, CHLOE DUCKWORTH,  
IAN C. FREESTONE, MARCEL FRENKEN,  
CAROLINE JACKSON, ARTEMIOS  
OIKONOMOU, THILO REHREN, JOSE  
ALBERTO RETAMOSA, DANIELA  
ROSENOW, ANDREW SHORTLAND AND  
MARTIN ZIMMERMANN**

Journal of Archaeological Science  
Volume 188, 2026, 106483  
<https://doi.org/10.1016/j.jas.2026.106483>

**Abstract**

This article examines available evidence for the use of plant ashes in glassmaking in the Mediterranean basin and Europe from the 1st to the 8th-9th century CE. During this period, glassmaking in these regions was overwhelmingly dominated by mineral fluxes, primarily natron, but the chemical composition of some glasses found in secure archaeological contexts suggests the use of plant ashes in these glasses, which are, on the other hand, compositionally distinct from glass made in regions where plant ash was used as the standard flux, for instance east of the Euphrates. The chemical characteristics of these glasses are examined, and different criteria are presented to aid in their identification. The chemical features are also interrogated to suggest possible silica and alkali sources and to determine possible similarities and differences in raw materials supply vis-à-vis natron glass. The archaeological and chemical evidence is brought together to try to define the technological, economic, and institutional implications of a possible glassmaking industry using plant ash, whose production parameters differ from those mobilised by the natron glass industry, in the periphery of the Roman world.

**Please visit the site:**

<https://www.sciencedirect.com/science/article/pii/S0305440326000130?via%3Dihub>

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**RECONSTRUCTING BRONZE AGE DIETARY  
HABITS UTILISING STABLE ISOTOPE  
ANALYSIS AT KÜLTEPE, CENTRAL  
TÜRKIYE, BY KAMERAY ÖZDEMİR,  
BENJAMIN IRVINE, HANDAN ÜSTÜNDAĞ,  
GUNDULA MÜLDNER, TURHAN DOĞAN,  
FURKAN KULAK AND FIKRI KULAKOĞLU**

Journal of Archaeological Science: Reports

Volume 71, 2026, 105711

<https://doi.org/10.1016/j.jasrep.2026.105711>

**Abstract**

This study uses the  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  values from bulk bone collagen of adult individuals, in combination with  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  values from bulk bone collagen of faunal remains, from the late Early Bronze Age and Middle Bronze Age individuals of Kültepe (Kayseri, Türkiye) to examine dietary habits and subsistence practices. This includes examining potential intra-population and demographic variation that will contribute to further understanding the societal dynamics at this important Anatolian Bronze Age centre. The  $\delta^{13}\text{C}$  values of the adult humans from Kültepe range from -20.1‰ to -18.3‰, and for  $\delta^{15}\text{N}$  values range from 4.7‰ to 11.6‰. The mean  $\delta^{13}\text{C}$  value for the adult humans sampled in this study is  $-18.9\text{‰} \pm 0.4\text{‰}$ , and for  $\delta^{15}\text{N}$  the mean value is  $9.9\text{‰} \pm 1.3\text{‰}$ . The results of this study demonstrate that whilst there is general and overall variation in isotopic values and, thereby, implied dietary habits, this is not observed when we examine them at smaller scales regarding intra-population demographic, burial, and chronological variables. No significant differences were identified between demographic groups, chronological periods, burial types, or burial locations. We could not clearly distinguish non-locals from locals in the skeletal sample population, and also no isotopic dietary evidence was found which would suggest non-locals in the sampled population.

**Please visit the site:**

<https://www.sciencedirect.com/science/article/abs/pii/S2352409X2600146X>

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**BEYOND THE CENTER: FOODWAYS IN  
BRONZE AGE KOUMASA, CRETE, BY  
KYRIAKI TSIRTSI, SYMEON GKINOUDIS,  
DIAMANTIS PANAGIOTOPOULOS, JUAN  
JOSÉ GARCÍA-GRANERO, EVI MARGARITIS**

Journal of Archaeological Science: Reports

Volume 71, 2026, 105655

<https://doi.org/10.1016/j.jasrep.2026.105655>

**Abstract**

This paper presents a novel approach to the understanding of the agricultural and culinary practices of the Minoan settlement of Koumasa, located on the fringe of the Mesara plain in Crete. Unlike previous research, which primarily focused on the cemetery and ritual practices of the Early Bronze Age, this study shifts the focus to the settlement itself, spanning from the Middle Minoan I-II to the Late Minoan I (c. 1950-1450 BCE).<sup>1</sup> By employing a multi-proxy approach, integrating archaeobotanical macro-remains (seeds and other plant parts) and micro-remains (starch granules from ground stone tools), this study aims to reconstruct food procurement, transformation, and consumption at Koumasa during the Bronze Age, allowing for a more comprehensive understanding of the development of food-related activities at the site. Furthermore, the study situates Koumasa within its broader landscape context, considering its location between the Asterousia Mountains and the Mesara plain. By examining the agricultural development, the paper seeks to shed light on the role of peripheral centers in Minoan Crete. The evidence from Koumasa is also compared with earlier research on the cemetery and other contemporary sites in Crete, providing valuable insights into regional variations in food practices and agricultural strategies. Overall, this study contributes to the understanding of everyday life in Minoan Crete and the diverse ways in which ancient societies interacted with their environments.

**Please visit the site:**

<https://www.sciencedirect.com/science/article/abs/pii/S2352409X26000908>

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**ABSOLUTE DATING OF THE LATE BRONZE  
AGE PALACE AT AGIOS VASILEIOS:  
INSIGHTS FROM DENDROCHRONOLOGY  
AND RADIOCARBON METHODS, BY A.  
CHRISTOPOULOU, N. KARADIMAS, Y.  
ÖZARSLAN, T. WAŻNY**

Dendrochronologia  
Volume 97, May 2026, 126500  
<https://doi.org/10.1016/j.dendro.2026.126500>

**Abstract**

Agios Vasileios, a major Late Bronze Age site in Laconia known since the late 1960s, has gained renewed scholarly attention over the past decade following the discovery of Linear B tablets. Until recently, the site's chronology relied primarily on pottery and human remains. In this study, dendrochronology, radiocarbon dating, and wiggle-matching analyses were applied to selected wood samples, most preserved as carbonized remains, to establish an independent absolute chronology based on tree-rings. Two site-specific chronologies were developed for juniper (*Juniperus* sp.) and black pine (*Pinus nigra*) and were cross-dated against superregional reference chronologies spanning the relevant period, originating from Anatolia (Türkiye). Both chronologies yielded consistent end dates of 1468 BCE and 1463 BCE. Radiocarbon-dated oak timbers recovered from Building D fall within 1380–1248 BCE. At least seven different locally sourced taxa were identified among the construction timbers, highlighting diverse resource use. These findings refine the chronology of Agios Vasileios and contribute to broader discussions of construction practices, resource use, and regional history in the Late Bronze Age Aegean. However, the dating results should be interpreted with caution, as the Gordion and Anatolian reference chronologies have also undergone recent revisions. Incorporating additional samples from future excavations will further help validate and strengthen the proposed chronology.

**Please visit the site:**

<https://www.sciencedirect.com/science/article/pii/S1125786526000329>

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# **MINERALOGICAL, PETROGRAPHIC, AND ISOTOPIC ANALYSIS OF COLORED STONES AND WHITE MARBLE FROM ANCIENT AND MODERN QUARRIES IN MANI PENINSULA, SOUTHERN GREECE, BY PETROS TZEFERIS AND VASILIOS MELFOS**

Minerals, **2026**, 16(3), 294  
<https://doi.org/10.3390/min16030294>

## **Abstract**

This study examines the marble resources of the Mani peninsula, southern Greece, a region that has long been known for its white, gray-black (*bigio antico*), green (*cipollino verde Tenario*), and particularly red (*rosso antico* or *lapis Taenarium*) and dark (*nero antico*) marbles. Based on extensive fieldwork, more than 90 quarrying sites were documented, several of which were recorded for the first time. This study provides a systematic characterization of these stones through combined mineralogical, petrographic, and stable isotopic ( $\delta^{18}\text{O}$ ,  $\delta^{13}\text{C}$ ) analyses of 27 representative samples. The results confirm the presence of calcitic marbles, which vary in color due to hematite in the red varieties, graphite and organic matter in the gray-black and black types, and chlorite in the green marbles. The isotopic results demonstrate a generally high degree of homogeneity, although the red marbles display greater variability, complicating their distinction from analogous stones in Asia Minor, such as those from Iasos and Milas. Quarrying of Mani marbles began in the Bronze Age and reached its peak during Roman times. It continued into the Byzantine period, with renewed exploitation in the 19th and 20th centuries. This study highlights the significant role of Mani in the ancient marble trade and contributes to ongoing debates about the provenance of famous red, white, and black marbles across the Mediterranean. Furthermore, it establishes a strong reference framework, integrating new analytical results with the existing literature, providing an updated mineralogical, petrographic, and isotopic database for provenance studies of marble artifacts.

**Keywords:** ancient quarries; Mani peninsula; *Taenarian stone*; *rosso antico*; *bigio antico*; *nero antico*; stable isotopes

Please visit the site: <https://www.mdpi.com/2075-163X/16/3/294>

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**RADIOCARBON DATING AND CHEMICAL  
IMAGING OF CARBON BLACK-BASED  
PALEOLITHIC CAVE ART IN THE  
DORDOGNE REGION (FRANCE),  
BY INA REICHE, LUCILE BECK, INGRID  
CAFFY AND PATRICK PAILLET**

PNAS, 2026, 123 (12) e2524751123  
<https://doi.org/10.1073/pnas.2524751123>

**Abstract**

Paleolithic parietal art in the Dordogne, Southwestern France, was known to present representations solely made with mineral coloring matters. We found a significant number of carbon black-based figures in the galleries of the Font-de-Gaume cave in Les Eyzies, Dordogne, Southern France [I. Reiche, Y. Coquinot, A. Trosseau, A. Maigret, *Sci. Rep.* **13**, 22235 (2023)]. Further reflectance imaging spectroscopy allowed a precise noninvasive discrimination between manganese- and carbon-based blacks. Consequently, in the Dordogne region, direct dating of drawn or painted lines was unlocked. Dating parietal representations can prove challenging because of the small amount of matter and the possible contaminations by other carbon sources. The sampling was conducted for radiocarbon dating on two selected figures identified as being made with carbon black: the *Bison* figure HB15 (named by Breuil, today GPCarG-006), located on the left at the level of the *Carrefour* in the public area of the cave, as well as on the *Mask* (human or animal face, GL3D-009) on the right of the remote sector 3 of the lateral gallery. Slightly more recent than expected, the obtained dates are of 13461–13162 calBP for the *Bison*, and of 8993–8590 calBP (left eye), 15981–15121 calBP (upper lip), and 15297–14246 calBP (lower lip) for the *Mask*. Except for one date, these results represent the experimental confirmation of the Paleolithic age of cave art in the Font-de-Gaume cave. This study opens numerous perspectives for a more systematic dating of the parietal representations of the cavern and motivates further research of carbon black-based Paleolithic parietal art in the Dordogne region.

Please visit the site: <https://www.pnas.org/doi/abs/10.1073/pnas.2524751123>

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**EARLIEST MILLET CULTIVATION**  
**REFLECTS STEPPE CONNECTIONS,**  
**DIETARY FLEXIBILITY, AND RESILIENCE**  
**IN BRONZE AGE NORTHERN GREECE,**  
**BY KYRIAKI KARANIKOLA, SOULTANA-**  
**MARIA VALAMOTI AND GIEDRĖ**  
**MOTUZAITE MATUZEVICIUTE**

PLOS One, 2026

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**Abstract**

This paper explores early broomcorn millet (hereafter millet) cultivation in Greece during the Bronze Age. The primary archaeobotanical data for this study derive from the site of Skala Sotiros on the island of Thasos in northern Greece. The site provides unique insights into localized Bronze Age agricultural practices, revealing both divergence from southern Greece agricultural systems and potential influences from exchange networks that linked northern Greece to the southern Balkans and the Pontic steppe–Black Sea region. Systematic sampling of the Bronze Age layers at Skala Sotiros has yielded a diverse assemblage with a notable abundance of millet (*Panicum miliaceum*), a crop almost absent from contemporary southern Greece. Recent radiocarbon dates on millet grains from Skala Sotiros contribute new evidence toward understanding the routes through which millet could have been introduced into the region during the Bronze Age. This study explores the interplay of environmental and cultural factors in the dispersal of millet in Greece, considering environmental stress, cultural dynamics, population movements, and interaction networks. The extensive review of archaeobotanical data across Greece demonstrates how the cultivation of millet may have served as a culinary identity signifier, providing further evidence of differences between northern and southern Greece.

**Please visit the site:**

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0344099>

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## **EΙΔΗΣΕΙΣ - NEWS RELEASE**

# **THE EGYPTIANS USED AN ANCIENT VERSION OF WITE-OUT TO CORRECT THEIR MISTAKES ON THIS PAPYRUS SCROLL 3,300 YEARS AGO, BY CHRISTIAN THORSBERG**

An ancient artist applied a white substance to an illustration of a jackal, slimming down its appearance, according to researchers at the Fitzwilliam Museum in England

Ancient Egyptian craftspeople used a corrective fluid similar to modern-day Wite-Out to fix their mistakes, according to researchers at the University of Cambridge's Fitzwilliam Museum.

Curators made the discovery while preparing for a new exhibition called "Made in Ancient Egypt." The show highlights the innovative techniques and technical processes that the Egyptians used to fashion the jewelry, ceramics and sculptures that continue to enchant modern museumgoers.

But just like today's artists, even the best ancient Egyptian craftspeople sometimes made mistakes.

While preparing to display a 3,300-year-old copy of the Book of the Dead—a collection of funerary texts and rituals intended to guide those who have died through the afterlife—exhibition curator Helen Strudwick noticed something strange.

On one papyrus page of the book, an illustration depicts a man named Ramose—a scribe who supervised the royal archives in the 13th century B.C.E.—with a figure that may be the jackal-headed god Wepwawet.

"On close inspection, a thick white pigment can be seen along either side of the jackal's body," writes the museum in a Facebook post. "The paint was used to alter the outline of the figure, making it slimmer."

Using X-ray fluorescence spectrometry, researchers at the museum found that this white paint was made of calcite and huntite. Meanwhile, "the white paint on Ramose's robe is only made of huntite," according to a statement from the museum.

This discovery suggested the white outline was added not to illustrate, but to correct.

"It's as if someone saw the original way the jackal was painted and said 'it's too fat; make it thinner,' so the artist has made a kind of ancient Egyptian Tipp-Ex—also known as 'Wite-Out' or 'Liquid Paper'—to fix it," Strudwick says in the statement.

Under a microscope, researchers also saw flecks of yellow paint on the jackal, which would have helped match the white paint to the cream color of the papyrus, which was likely a slightly different shade of beige thousands of years ago.

[...]

Copies of the Book of the Dead were customized for and buried with the newly deceased, though the level of detail and artistry within their pages often corresponded to the individual's wealth and status. In 1922, the archaeologist William Flinders Petrie discovered Ramose's book in a tomb in Sedment, Egypt, about 70 miles south of Cairo. "It is considered one of the finest Books of the Dead to have survived from ancient Egypt," Artnet's Richard Whiddington writes.

When it was first discovered, Ramose's Book of the Dead was in hundreds of pieces. Experts think that at the time of burial, the scroll measured roughly 64 feet long. In 2006 and 2007, a conservator carefully cleaned and repaired each fragment.

The corrected scene itself is an important one. Spell 117 in the Book of the Dead tells the deceased to take the road to Rosetau, which was "the glorious realm of Osiris, god of death," wrote Smithsonian magazine's Katherine J. Wu in 2019.

The corrective fluid revelation isn't the only discovery curators made while preparing the new exhibition, which runs until April 12. Last summer, researchers announced that they'd discovered a 4,000-year-old handprint left behind on a soul-house, a "model dwelling often used in burials," according to the museum.

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Christian Thorsberg is an environmental writer and photographer from Chicago. His work, which often centers on freshwater issues, climate change and subsistence, has appeared in Circle of Blue, Sierra magazine, Discover magazine and Alaska Sporting Journal.

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**Please visit the site: <https://www.smithsonianmag.com/smart-news/the-egyptians-used-an-ancient-version-of-wite-out-to-correct-their-mistakes-on-this-papyrus-scroll-3300-years-ago-180988331/>**

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## **NEW ANCIENT EGYPTIAN DISCOVERY** **UNEARTHED IN LUXOR**

A joint Egyptian archaeological mission between the Supreme Council of Antiquities and Zahi Hawass Foundation for Antiquities and Heritage has unearthed a cache of painted coffins containing mummies, alongside a collection of rare papyri dating back to the Third Intermediate Period.

### **Historical Sites & Buildings**

The discovery was made during excavations in the southwestern corner of the courtyard of the tomb of Seneb in Qurna area on Luxor's West Bank.

Minister of Tourism and Antiquities, Sherif Fathy, stated that this discovery represents a significant addition to Egypt's record of distinguished archaeological finds.

The find also reflects the full and continuous support provided by the state to archaeological research, he said, coming as result of a comprehensive strategy to preserve cultural heritage and highlight its civilizational and human value.

Former Antiquities Minister and head of the mission, Zahi Hawass, hailed the discovery as exceptional.

He explained that it reveals new secrets from the Third Intermediate Period (Dynasties 21-25), offering a wealth of information about the mysteries of this era.

He added that the excavations revealed a rectangular chamber carved into the rock, intended as a funerary burial chamber.

Inside, 22 painted wooden coffins were found stacked in several layers, reflecting a remarkable level of organization.

Hawass noted that the ancient Egyptians utilized the space efficiently by arranging the coffins in 10 horizontal rows, separating the lids from the boxes to maximize the chamber's capacity.

The mission also unearthed a collection of pottery vessels, believed to have been used to store remnants of mummification materials.

### **Owners remain a mystery**

The Secretary-General of the Supreme Council of Antiquities, Hisham al-Leithy, said that the mission is currently working to solve the mystery of this cache and identify its owners, especially since most of these coffins bear professional titles rather than names.

He explained that the most common title is "Singer of Amun," which opens new avenues for studying the class of chanters and singers during that era.

Leithy added that, given the poor condition of the wood, the mission's restoration team intervened to carry out urgent conservation work.

The mission's supervisor, Afifi Rahim, said that the eight papyri found inside a large pottery vessel, some still bearing their original clay seals, vary in size.

He emphasized that these papyri are a treasure trove of information, the results of which the world will eagerly await upon completion of the restoration and translation work.

**Please visit the site: <https://www.egyptindependent.com/new-ancient-egyptian-discovery-unearthed-in-luxor/> [Go there for pix]**

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