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2024

Re-UNITA RESEARCH Newsletter

Editorial

When interdisciplinarity leads to a major discovery in Cultural Heritage…

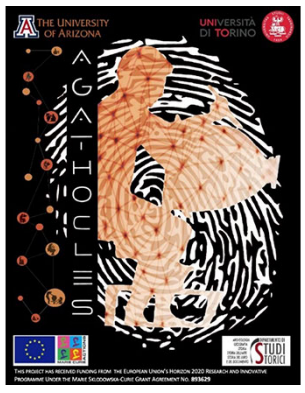
In April 2024, a team of researchers from different disciplines (environmental chemistry, geomorphology, archaeology, etc.), including some from the EDYTEM laboratory, published innovative results in the scientific journal Journal of Archaeological Method and Theory, setting out a new vision of the involvement of Holocene-era societies (relative to the last 12,000 years) in deep caves.

The team focused on the Saint-Marcel cave, located in Ardèche, in France, as it offered a wealth of archaeological evidence and a large research area (64 km of galleries). Using complementary methodologies (3D mapping, coring, concretion sampling, chemical analysis), the researchers made a unique discovery: black particles found in the concretions, possibly resembling soot from torches, confirmed the hypothesis that humans were present in prehistoric times - a world first in places so far from the cave entrances.

https://www.univ-smb.fr/2024/05/24/des-chercheurs-dedytem-lies-a-une-decouverte-scientifique-majeure-dans-la-grotte-saint-marcel/

Jean-Jacques Delannoy, full professor in geomorphology
Christine Piot, assistant professor in environmental chemistry
Université Savoie Mont Blanc

Cultural Heritage



A.G.A.T.H.O.C.L.E.S. is an international Marie Sklodowska-Curie research project, supported by the European Commission and based
between Turin – Department of Historical Studies, Bari – Department of Chemistry, and University of Arizona, Tucson (USA).
The project focuses on the study of the technology, the crafting procedures, the formative models and the organization networks of the ancient red-figure pottery workshops of Magna Graecia and Sicily. One of the main goals of this research activity is to reconstruct, thanks to a highly interdisciplinary approach (archaeometry, computational imaging, dactyloscopic investigation, experimental archaeology and social network analysis) the ancient savoir-faire of the South Italian painters during the fifth and the fourth centuries B.C., thanks to an in-depth analysis of the "sequence of gestures" related to the craftspeople working within the ancient workshops of red-figure pottery.

University of Turin
The project is led by Marco Serino as Principal Investigator.
Site: www.agathocles.net
University of Arizona, School of Anthropology
https://anthropology.arizona.edu/news/marco-serino-marie-sklodowska-curie-european-commission-fellow-hosted-soa
University of Bari "Aldo Moro", Department of Chemistry
https://www.uniba.it/it/ricerca/dipartimenti/chimica

Circular Economy

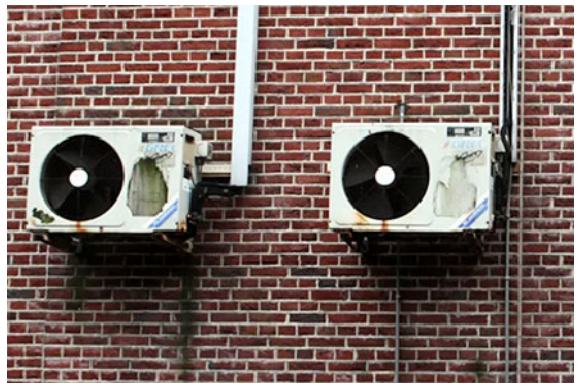
ROmania Serbia NETwork for assessing and disseminating the impact of copper mining activities on water quality in the cross-border area (RoSNET2)

Copper extraction activities have affected the environment in the Romania-Serbia cross-border area. The Western University of Timisoara, the Bor Institute of Mines and Metallurgy and the Nera Ecological Collaboration Group researched a solution to reduce the degree of pollution caused by mining activities by implementing the RoS-NET2 project. We monitored the environment, proposed appropriate solutions to reduce contamination produced by mining operations and provided scientific reports to decision-making authorities. The project won the RegioSTAR award in 2023 in the category A Green Europe.

West University of Timisoara

https://www.elearning-chemistry.ro/rosnet2/

Renewable Energies



Is air conditioning the answer to global warming?

Due to global warming, the use of air conditioners has increased in recent years. Although useful, this equipment is not without adverse effects, as highlighted by LOCIE laboratory. Firstly, their use increases electricity consumption, and contributes to higher greenhouse gas emissions. Secondly, it reinforces the "heat island" phenomenon in urban environments by releasing hot air during a heat wave. Lastly, air conditioners require refrigerants, which are themselves vectors of greenhouse gases.

Link: https://theconversation.com/la-climatisation-une-solution-pour-mieux-vivre-le-rechauffement-climatique-228309

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PhD student of the month

Marta Magalini graduated with honours in physics in 2021 from the University of Padua. Her main research is trying to answer the question of the provenance of the raw lapis lazuli used in ancient times (3rd-1st millennium BCE), with the aim to help in reconstructing ancient trade routes. To reach the goal she uses chemical-physical and nuclear techniques in collaboration with the

National Institute for Nuclear Physics (INFN) working with archaeologists, geologists, chemists, and museums, including the Egyptian Museum in Turin. In the framework of this research, she was the principal investigator of 3 projects that she won on European calls (including one on IPERION-HS) for access to infrastructures for proton beam analysis (in France, Croatia and Great Britain).

Moreover, she took part in the neutron analysis of Ancient Egyptian bronzes at TU-Delft (Netherlands) and spent 3 months at the University of Okayama (Japan) where she analysed ancient metal weapons and ceramics from the Yayoi and Kofun periods.

Woman researcher of the month

Maria POIENAR, Institute for Advanced Environmental Research (ICAM), West University of Timisoara, Romania holds a degree in Physics from West University of Timisoara and received her PhD in Chemistry at the Université de Caen Basse-Normandie (France) in 2010. After completing the PhD, she become postdoctoral researcher at Institute Charles Gerhardt Montpellier, France and in present has established collaboration with universities and research institutes from abroad (France, Poland and United Kingdom). From February 2023, she occupied the position of Scientific Researcher at ICAM, West University of Timisoara where the main scientific interest is devoted to the synthesis and characterization of materials with applications in different domains as environmental protection, energy, optics etc. Her main focus is to use experimental laboratory characterization techniques for the structural, thermal, magnetic and electric properties of different materials and to perform experiments in large-scale facilities (neutrons and X-Ray synchrotron diffraction) for crystal and magnetic structure studies. Aside her research interest, she is also Associate Teacher at Physics Faculty - West University of Timisoara and her teaching activities related to the X-Ray diffraction techniques and Rietveld method for crystal structure analysis are dedicated to the students from the Master programs. She is engaged in promoting scientific research to the students, in presentations at West University of Timisoara in Spring Physics Camp, Interactive Crystal Growing Laboratory or „Innovation & Entrepreneurship in the European Blue Economy" Erasmus+ Blended Intensive Learning Programme, for example. Maria Poienar coordinated 2 research projects won by competition as Principal Investigator and published more than 50 articles in ISI journals.
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Interview»

Infrastructure of the Month

MUST is a shared computing and storage center, attached to the Centre National de la Recherche Scientifique (CNRS, IN2P3) and Université Savoie Mont Blanc (USMB).
It meets scientific computing needs in the fields of particle physics, astrophysics, theoretical physics, materials science, information processing and artificial intelligence. It contributes to the exploitation of scientific data from the Large Hadron Collider (LHC) within the global infrastructure (WLCG) and is also open to the European Grid (EGI).
MUST is also open to socio-economic partners and supports the digital transition of companies in the Savoie Mont Blanc territories through the IDEFICS project.

https://www.must-datacentre.fr/en/

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