

20th UISPP World Congress

S6-2 Traceology and its interdisciplinary approach to the analysis of wear traces and residues for understanding the evolution of human capacities

SESSION ABSTRACT

Traceology is one of the fields in archaeology that has been designed in an interdisciplinary way. With the interplay of microscopic, experimental, and ethnographic methods, it attempted since its inception in the 1930s to go beyond a solely typological approach to prehistoric artefacts and to give tools made of stone, bone and antler, hitherto regarded predominantly as "index fossils" for a relative chronology, an active role in the reconstruction and assessment of human behaviour, cognition and evolution. Traceology and the study of prehistoric tool functions and technologies is a rather complex task which requires the transdisciplinary interaction of different methods and fields in addition to the archaeological approach, such as microscopy, fracture mechanics, materials science, tribology, chemistry, environmental sciences, ethnography, and experimental archaeology, among others. Traceology is an encompassing research system based on a detailed data and information pool that enables the analyst to identify and interpret wear patterns, residues, and other surface alterations on artefacts. This 'traceological reference collection' is mainly supplied by experiments using tool replicas that imitate prehistoric working activities as realistically as possible as well as execute mechanical, automated processes under defined and monitored parameters.

Complemented by archaeological accounts, ethnographic observations and technical knowledge, this experimental framework is crucial for the reconstruction of prehistoric tool uses and human behavioural responses to changing environments. Although traceological analysis appears to be a straightforward method, its usefulness for the recognition of past human behaviour and human-environment interaction still depends on the understanding of tool use and mechanical processes as well as the research experience of the analyst. Optical microscopy using reflected-light and stereomicroscopes continues to be the methodological backbone of Traceology. In addition, technological innovations in microscopy and material analysis have been introduced in recent years, attempting to overcome specific problems and to achieve better results, among them scanning electron microscopy, laser or white light confocal microscopy, X-ray microanalysis, vibrational techniques as Raman and Fourier transform infrared spectroscopy, GC-tandem MS, and more to use-wear and residue analysis.

The UISPP Commission A17, 'Functional Studies of Prehistoric Artifacts and their Socio-economical Meaning', invites traceologists and archaeologists who work in the interdisciplinary field of microwear and residue analysis to present their latest research and the application of new techniques and instruments to contribute to the methodological debate, and to bring prehistoric tool uses in context with technological advancement, subsistence strategies and adaptation to different environments.

Main Organiser

Alfred Pawlik

Co-Organisers

Riczar Fuentes, Natalia Skakun, Vera Terekhina, Belén Márquez, Andreu Ollé, Laura Longo



Date: September 6, 2023

West University of Timișoara

Room: 4, 8:40-17:40



S5-1 Understanding connections between mines and other archaeological contexts

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8:40	Alice Rodriguez, Kaushik Yanamandra, Rakesh Behera, A. J. Crawford, Patrick Schmidt, Radu Iovita <i>New investigations on lithic use wear formation using controlled experiments</i>
9:00	Lena Asryan, Veerle Rots <i>Investigating the potential of basalt tools through use-wear experiments</i>
9:20	Andreu Ollé, Lena Asryan <i>Investigating Cretaceous chert through experimental and multi-technique</i>
9:40	Giusi Sorrentino, Laura Longo, Marco Paggi, Fabio Menna, Alessandro Borghi, Theodor Obada, Alessandro Re, Alessandro Lo Giudice <i>Analysing Surface Texture Modification of GSTs in Sequential Experiments through Integrated Imaging Techniques</i>
10:00	Anna Francès-Abellán, Juan Luis Fernández-Marchena, Andreu Ollé <i>Cleaning your tools doesn't mean that the tools are clean. A qualitative and quantitative perspective</i>
10:20	Riczar Fuentes, Alfred Pawlik <i>Still scratching the surface status quo and future directions of lithic use-wear analysis in Island Southeast Asia</i>
10:40	COFFEE BREAK
11:00	Ana Tetrushvili <i>Interdisciplinary study of grinding stones preserved at the Archaeological collections of Georgian National Museum</i>
11:20	Iovino Maria Rosa <i>Bark foraging and seeds breaking empirical data and new insights into modelling past human behaviour</i>
11:40	N.N. Skakun, V.V. Terekhina, N.A. Zhogova <i>Comprehensive Studies of Tools for Iron Ore Processing in South Siberia during the Second Half of the 1st Millennium BC</i>
12:00	Okopi Ade, João Marreiros <i>Typology, Technology and Traceology A Functional approach to understanding Neolithic celts from Akwanga, Central Nigeria</i>
12:20	Liping Xue, Hong Chen, Huiyuan Gan, Xinhai Zhu <i>The Techno-economic Role and Functional Life of Ground Stone Tools at Qintangshan Site, Jiangsu Province, China (4300-1000 BC)</i>
12:40	Pedro Peça, Telmo Pereira

	<i>Function based approach to the Middle Paleolithic lithic assemblages in Middle Tagus River basin</i>
13:00-14:00	LUNCH
14:20	Cristina López-Tascón, Carlos Mazo Pérez, Marco de la Rasilla Vives <i>Carinate endscrapers, cores or vice versa Analysis of Aurignacian artefacts from La Viña rock shelter (Asturias, Spain)</i>
14:40	Juan Luis Fernández-Marchena, Andreu Ollé, María Soto, Juan Ignacio Morales, Josep Vallverdú <i>Inferring functional mobility of hunter-gatherer through use-wear analysis. The case of La Balma de la Vall (Montblanc, Northeast Iberia)</i>
15:00	Hermine Xhaufclair, Anne Ford, Dries Knuts, Dylan Gaffney <i>Evidence for plant technology in Prehistoric New Guinea the Kiowa polisher</i>
15:20	Alessandro Aleo, Myrto Despotopoulou <i>Adhesive remains from the Palaeolithic site of Morín Cave a multidisciplinary approach for residues identification</i>
15:40	Clarissa Dominici, Chiaramaria Stani, Lisa Vaccari, Adriana Moroni, Francesco Boschini <i>The effects of diagenetic processes on residue analysis an update from the Aurignacian layer 24a1 of Grotta Paglicci, southern Italy</i>
16:00	COFFEE BREAK
16:20	Clarissa Dominici, Matteo Rossini, Chiaramaria Stani, Antonin Tomasso, Lisa Vaccari, Francesco Boschini, Adriana Moroni <i>Multidisciplinary analysis of the backed pieces of layer O, Grotta della Cala (Campania, southern Italy) combining lithic technology and high-resolution chemical characterisation of Epigravettian residues</i>
16:40	Ourania Palli, Eleni Pavlidou, Lamprini Malletzidou, Triantafyllia T Zorba, Ioannis Nazlis, Georgia Kourtessi-Philippakis, Stelios Andreou, Sevasti Triantafyllou <i>Multidisciplinary approach to the analysis of residues on quartz tools from the Bronze Age Thessaloniki Toumba, Greece</i>
17:00	V.V. Terekhina, N.N. Skakun <i>On the question of the hafting method of ancient Inuit ulu stone knives</i>
17:20	Cristiana Petrinelli Pannocchia, Alice Vassanelli <i>New insights on Italian Neolithic and Copper age steatite ornaments experimental and traceological approach</i>