



09TH
INTERNATIONAL
SCIENTIFIC
CONFERENCE
METHODOLOGY & ARCHAEOLOGY
Zagreb, 2nd – 3rd December 2021

eBook of abstracts

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and the Croatian Archaeological Society

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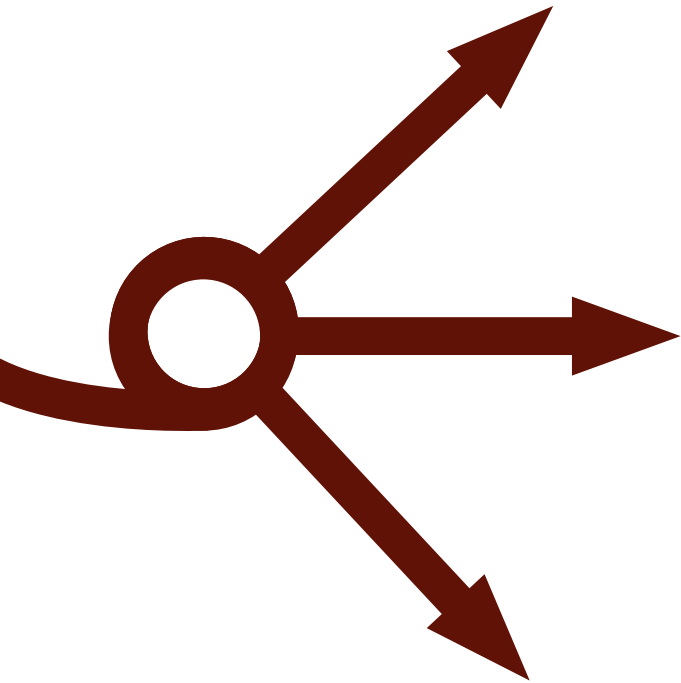
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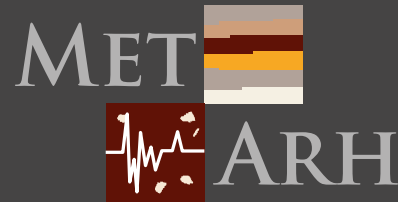


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The scientific conference *Methodology and Archaeometry* is being organised by the Department of Archaeology, Faculty of Humanities and Social Sciences since 2013. The goal of the conference is to entice interdisciplinarity, critical thinking, new insights and approaches as well as new theoretical frameworks in contemporary archaeological science.

Coverage of a wide spectrum of themes and scientific disciplines has resulted in papers and discussions that promote scientific issues in the fields of methodology, documentation and interpretation of archaeological data. The interdisciplinary character of the conference brings together archaeologists and researchers from other scientific disciplines with whom archaeologists collaborate closely; and who – through their work, projects and ideas – promote new insights about Interpretation of the human life in the past.

Section Methodology

Obtaining and collecting data is an essential part of the archaeological research process. How we collect and interpret data defines the validity of our interpretation. We use different techniques, approaches and tools which help us to reconstruct the past processes and to give more objective and comprehensive picture of the past. Contemporary interpretation tools alleviate and speed the data collection and also provide us with countless possibilities of interpretation, protection and presentation of archaeological sites and the landscapes encompassing them.

Section Archaeometry

Having in mind limited information we obtain from archaeological excavations and the classification of archaeological material, cooperation with other scientific disciplines becomes unnecessary, to obtain as much information as possible on the conditions and the way in which the humans lived in the past. Contemporary archaeology is a very heterogeneous discipline encompassing interest groups focussed on various periods, regions, theoretical frameworks and methodological techniques. Aside from the description of mechanical and physical features of a specific artefact or material, various archaeological analyses help us to direct our scientific focus to questions regarding the ways and features included in the social and cultural life of people who made, used, exchanged and discarded those objects. Cooperation with the natural sciences provides answers to many questions, but it also demands an additional level of caution when selecting adequate scientific analysis for a specific archaeological problem. It also demands a continuous cooperation of a specific expert and an archaeologist from sample collection to the final interpretation.

Due to the COVID-19 pandemic, this year's conference will be held on online platform for virtual events: <https://hopin.com/events/metarh-2021>

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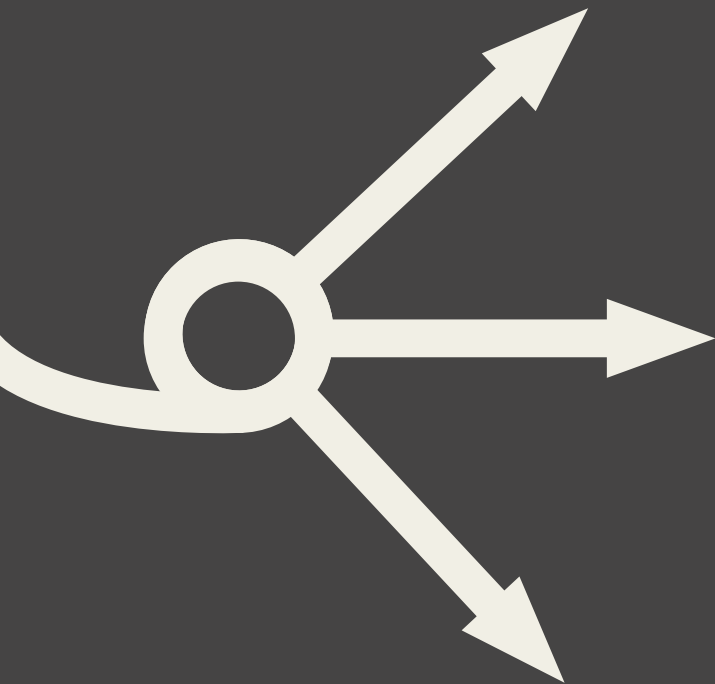
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PROGRAMME

Thursday, 2nd of December**10:00 – 10:15****Conference opening****Ina Miloglav** – organizer, Department of Archaeology**Jacqueline Balen** – president of Croatian Archaeological Society**Nevena Škrbić Alempijević** – Vice-dean for research and international cooperation**Keynote lecture:****Chair: Ina Miloglav****10:15 – 10:45****Vedrana Glavaš****Cadaver dogs, archaeologist's best friends.****The use of dogs as bio-detectors in archaeological prospection****10:50 – 11:00****Break****Session 01****Chair: Miroslav Vuković****11:00 – 11:15****Andrej Janeš****Use of archaeological structural survey and the analysis of standing structures on mediaeval castles****11:20 – 11:35****Ivor Kranjec & Jelena Behaim****Macro and Micro Spatial Analysis in the Research of Early Medieval Istrian Bale Region****11:40 – 11:55****Igor Kulenović, Šime Vrkić & Sara Igljić****Historic Landscape Characterization – Let's Do That!****12:00 – 12:15****Neda Kulenović****Historic Landscape Characterisation –****Potential Improvements of the Method Using Geospatial Technologies**

12:20 – 12:35

Igor Medarić

Project MagIstra - magnetic mapping of archaeological structures in soils on flysch. Case studies from Slovenian Istria

12:40 – 13:00

Break

Session 02

Chair: Jacqueline Balen

13:00 – 13:15

Jelena Anđelković Grašar & Bojana Plemić

Participation programmes for young people as an educational method in archaeology dissemination

13:20 – 13:35

Predrag Novaković

The Sorcerer's Apprentices: Teaching archaeological methods and techniques

13:40 – 13:55

Maja Kaleb & Ivan Vidulić

Underwater Archaeology Courses conducted by ICUA Zadar

14:00 – 14:45

Break

Session 03

Chair: Rajna Šošić Klindžić

14:45 – 15:00

Dragana Rajković & Selena Vitezović

The Prehistoric site of Kotlina – methodology of excavation and preliminary results from seasons 2018–2021

15:05 – 15:20

Dolores Knežić

Alternative methods in handling heavy fraction - when do we need them?

15:25 – 15:40

Mario Novak & Dragana Rajković

The Late Neolithic human burials from Kotlina - Szuzai Hegy, Baranja: the first results of the anthropological analysis

15:45 – 16:00

Tina Bareša, Ivan Jerković, Željana Bašić & Ivana Kružić

The role of multi-slice computed tomography (MSCT) imaging in biological anthropology

16:05 – 16:20

Goran Tomac

Moooooving with the Herd - The analysis of domestic animal body size in the Neolithic and Copper Age of the eastern Croatia

16:25 – 16:40

Break

Session 04: Poster presentations

Chair: Nikola Vukosavljević

16:40 – 16:45

Šime Vrkić, Sara Igljić & Igor Kulenović

Late Prehistoric Enclosures- an Elusive Type of Site

16:45 – 16:50

Pio Domines Peter

Survey methodology and challenges in an inaccessible Mediterranean (is)landscape with small surface visibility and dense vegetation - case study from island of Ist, Northern Dalmatia

16:50 – 16:55

Jugoslav Pendić, Vidan Dimić & Dragana Antonović

Application of photogrammetric method of 3D scanning within the shaft Object 1 at the Prljuša-Mali Šturac site

16:55 – 17:00

Katarina Gerometta & Rajna Šošić Klindžić

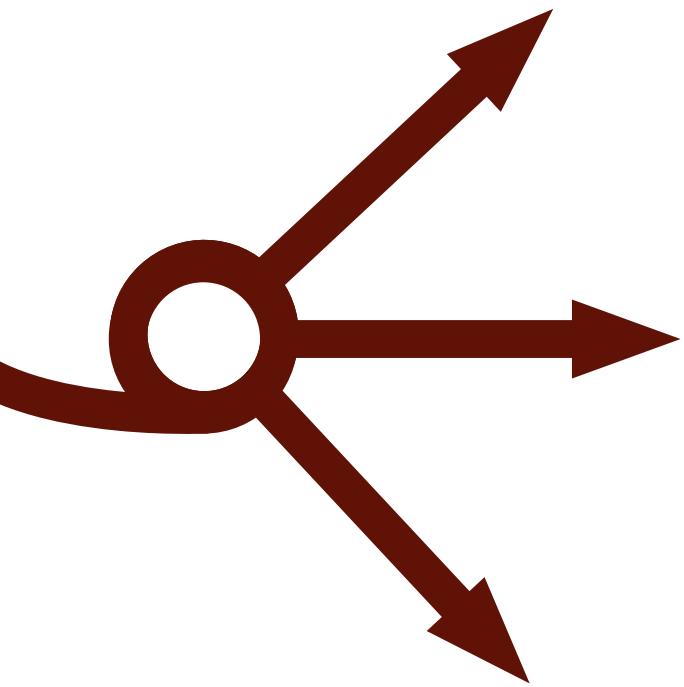
Archaeological micromorphology at the Late Neolithic site Gorjani

17:00 – 17:05

Katarina Šprem & Bernardo Marcuiš

Geochemical analysis of Istrian flint – first results and discussion

Friday, 3rd of December**Session 05***Chair: Jasna Vuković***10:00 – 10:15****Tomislav Brenko, Tena Karavidović, Sibila Borojević Šoštarić & Tajana Sekelj Ivančan**
Mineralogy and geochemistry of iron slags towards their provenance studies in Podravina region, NE Croatia**10:20 – 10:35****Ilaria Calgaro, Umberto Veronesi, Antonina Ermolaeva & Miljana Radivojević**
Copper production and technology at Mid-Late Bronze Age Taldysai (central Kazakhstan): its place in the wider Eurasian metalmaking framework**10:40 – 10:55****Tena Karavidović & Tajana Sekelj Ivančan**
Interpreting the archaeological record of iron production sites: a multi-method approach**11:00 – 11:15****Zorana Kovačević & Julia Fileš Kramberger**
SEM in Archaeological Textile Research**11:20 – 11:35****Aleksandra Cetwińska, Ewa Wagner-Wysiecka, Katarzyna Kwiatkowska & Dariusz Manasterski**
Origin versus style. An interdisciplinary study of amber ornaments from NE Poland**11:40 – 12:00****Break****Session 06***Chair: Ivana Ožanić Roguljić***12:00 – 12:15****Ana Fundurulić, Mafalda Costa, Fabrizio Michelangeli, Andrea Babbi, Cecilia Predan, Ana Manhita, Alessandra Celant, Cristina Barrocas Dias & Donatella Magri**
Exploring Etruscan burial rituals: analysis and research potential of organic residues from funerary bronze vessels**12:20 – 12:35****Anđa Petrović, Cristina Lemorini & Stella Nunziante-Cesaro**
Reference collection as key element of use-wear and residue analysis of chipped stone assemblages: study of Iron Gates region (Serbia)**12:40 – 12:55****Nikola Marković, Boban Tripković, Marko Porčić, Ana Tripković & Jasna Vuković**
Preliminary X-Ray Fluorescence Analysis of Early Eneolithic Pottery: Šanac-Izba near Lipolist (Western Serbia)**13:00 – 13:15****Andreja Kudelić, Dinko Tresić Pavičić, Natali Neral, Mia Marijan & Ana Maričić**
Research on Bronze Age pottery traditions – Conceptual approach**13:20 – 13:35****Aleksandra Cetwińska, Grzegorz Koczan, Maciej Sadło & Dariusz Manasterski**
Potential of using reed arrow shafts hidden in their spine-force value**13:40 – 14:00****Break****Session 07***Chair: Jacqueline Balen***14:00 – 14:15****Ines Krajcar Bronić, Ivor Karavanić, Andreja Sironić, Nikola Vukosavljević, Marko Banda & Fred Smith**
Radiocarbon dating of the Middle Paleolithic animal bones from two caves, Croatia**14:20 – 14:35****Miroslav Marić, Jelena Bulatović & Nemanja Marković**
Regional Absolute Chronologies of the Late Neolithic in Serbia**14:40 – 14:55****Andreja Sironić, Žana Matulić Bilač, Barbara Španjol-Pandelo & Ines Krajcar Bronić**
Dating wooden artefacts treated with resins**15:00 – 15:15****Dinko Tresić Pavičić, Željka Bedić & Filomena Sirovica**
System for Recording and Analyzing Articulated Human Skeletal Remains**15:30****Closing**



ABSTRACTS



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Application of photogrammetric method of 3D scanning within the shaft Object 1 at the Prljuša-Mali Šturac site

Ten years of archaeological research on the Prljuša-Mali Šturac site have shown that on this steep slope of Mt. Rudnik is one of the largest and richest mining sites in Southeast Europe, where malachite was exploited in the period from the Eneolithic to the Bronze Age. Since 2013, the excavations have focused on surface mining open-pits on the central part of the slope (Shafts 4 and 6), while in 2014 the focus shifted to the top of the slope, and, as later research turned out, the imposing shaft Object 1. Over the course of campaigns, a number of interconnected galleries, hallways, entrances, burning marks, and marks of ore extraction were discovered, alongside over 500 hammerstones. As the works progressed, Object 1 became clearly defined, and plans for the arrangement and presentation of this part of the site were in development. In addition to site arrangement, the plans for the presentation included a 3D reconstruction of Object 1, and then the other shafts that are visible on the slope and whose research has not yet been conducted. The ultimate goal is a successive creation of a collection of 3D digitized prehistoric mining shafts of Prljuša - Mali Šturac that would have a research-presentation character.

The first step towards this goal was done in 2019, with the creation of technical documentation of Object 1 through 3D scanning, by terrestrial photogrammetry. During this process, a large number of convergent photographs of the research zone were collected, where all exposed areas, sheltered and covered sections were documented in multiple frames. The primary interest was to deliver complete reconstruction and so-called “ground zero” snap of the situation, for spatial plan development, conservation and presentation of mining structures. The final result of the 3D scan included the creation of a spatial plan of the whole and DMT (Digital Terrain Model) model, as well as a geometrically corrected orthophoto (True Orthophoto), a highly detailed 3D model of the whole, and an optimized view for sharing on online services. This poster presents the final products of this process. The authors believe that the existence of a reference collection of 3D digitized prehistoric mining shafts would be a welcome resource for the explorers, that would provide unique insight, from a new perspective, into the method of exploitation and formation of shafts, their maintenance, abandonment, and backfilling, together with the process of decay and collapsing.

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Archaeological micromorphology at the Late Neolithic site Gorjani

Prehistoric settlements, especially when dealing with multilayer sites, make complex microstratigraphic sequences that have been formed from different processes and diverse materials. Particularly suitable method for studying and interpreting archaeological layers of complex origin is soil and sediments micromorphology. Preliminary analysis of seven thin sections from the Late Neolithic Sopot culture site of Gorjani-Kremenjača (Đakovo, Eastern Croatia) will be presented in the poster. Four soil samples were collected in sequence in the feature that was originally marked

in the field as a possible pit filling, but subsequent micromorphological analysis showed natural soil pedogenesis. Three samples indicate anthropogenic sediments connected to settlement activities, both inside houses and in open areas. Anthropogenic activities are indicated by the presence of ash, phytoliths, organic matter, bones, phosphates and fabric characteristics.

Katarina Šprem¹ & Bernardo Marciuš²

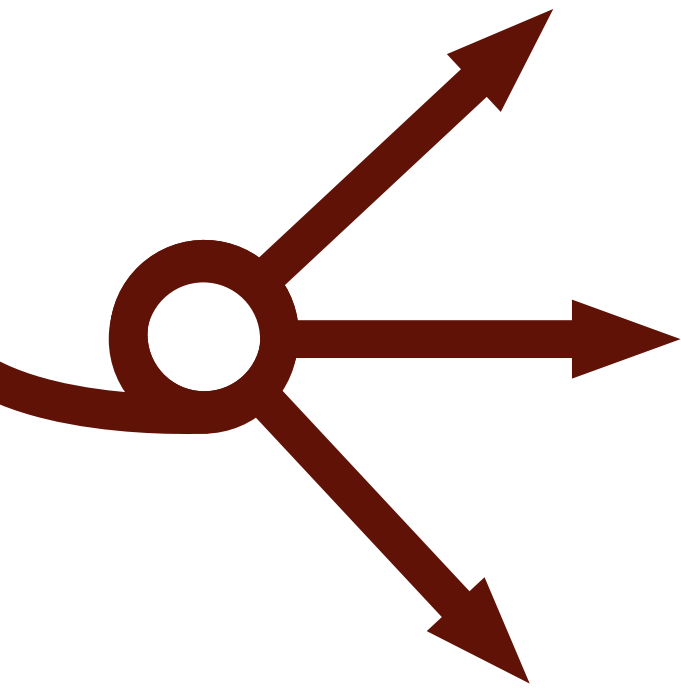
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Geochemical analysis of Istrian flint – first results and discussion

Geochemical characterization of flint is an analysis frequently used by archaeologists in their study of flint provenance in archaeological contexts. While flint deposits from northern Croatia were analyzed geochemically in the last several decades by geologists and archaeologists alike, there have not been any such analysis done on flint from the Istrian peninsula. There are several primary and secondary deposits of flint in the Istrian peninsula which were used frequently during prehistory. We decided to geochemically analyze two flints from archaeological contexts of the Neolithic site of Kargadur in southern Istria, as well as two flints from the deposits in southern Istria: one from the primary deposit on Vižula peninsula, and the other from the secondary deposit on Marlera peninsula, both within a four-kilometre distance from the Neolithic site, as the crow flies.

The four flint samples were analyzed using ICP-OES (Inductively coupled plasma optical emission spectrometry) and ICP-MS (Inductively coupled plasma mass spectrometry) analysis in Bureau Veritas Commodities Canada Ltd in Vancouver, Canada, which provided us with data on major oxides, major, minor, and trace elements. Even though we realize only four samples are not enough for a detailed study on the geochemical characterization of Istrian flint deposits, we nevertheless believe our data is a good starting point for other geochemical analyses. Moreover, data from geochemical analyses on four more samples from the Vižula and Marlera deposits using pXRF are forthcoming.



PUBLICATIONS

PUBLICATIONS

<https://metarh.ffzg.unizg.hr/publications/>

Papers from the 1st and 2nd conference *Methodology and Archaeometry* are published in the Journal *Opuscula Archaeologica* 39/40, Department of Archaeology, Faculty of Humanities and Social Sciences of the University of Zagreb, Zagreb, 2018.

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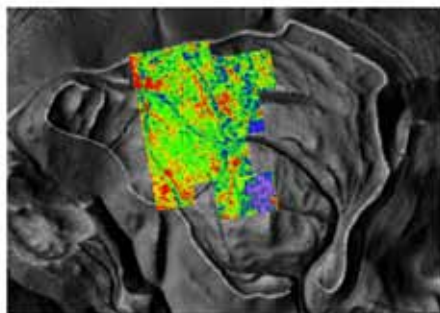
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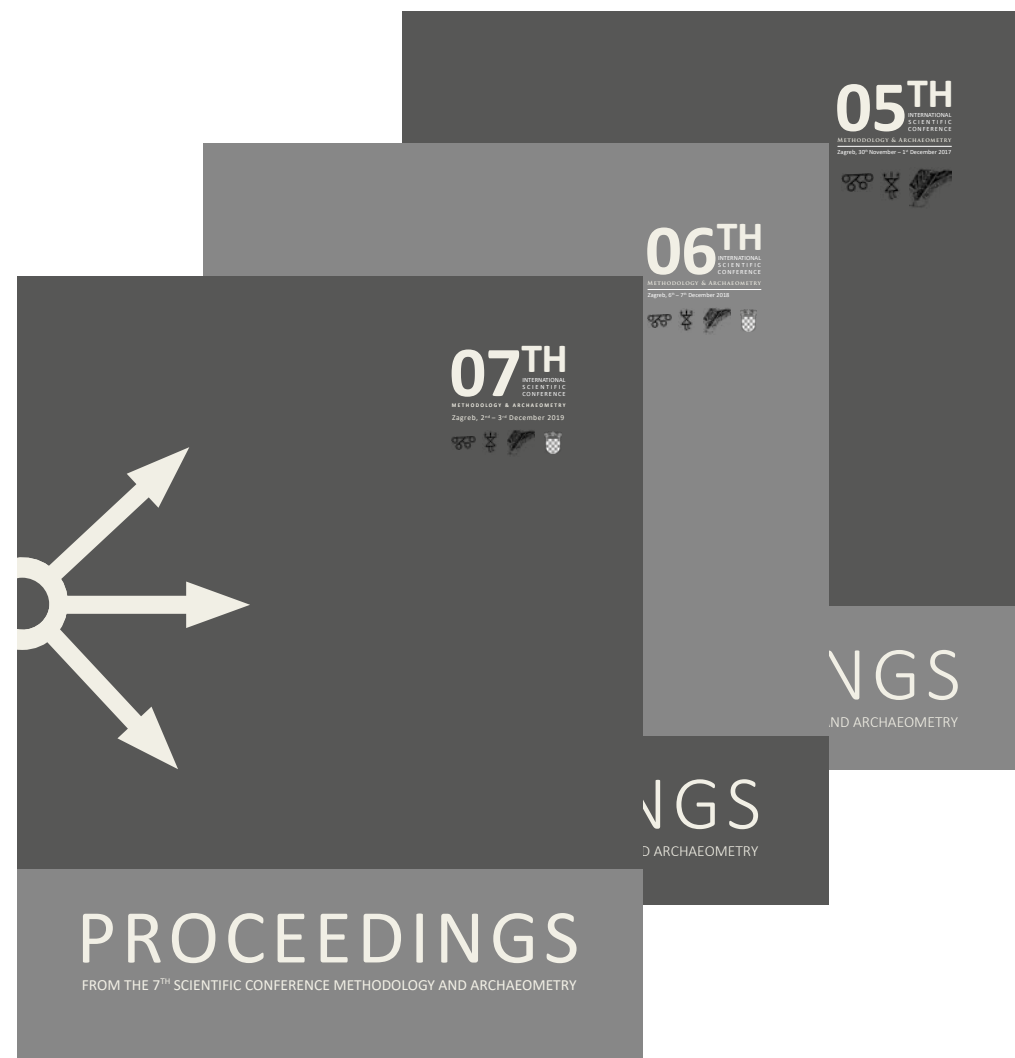
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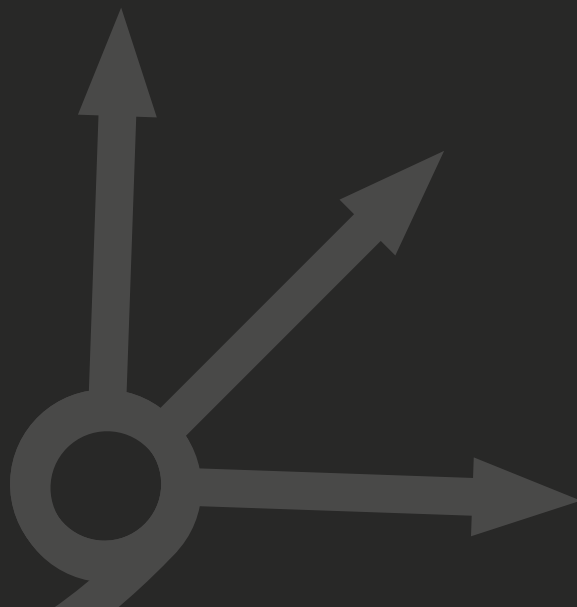
Since 2019 papers from the conference are published in the *Proceedings from the scientific conference Methodology and Archaeometry* on a platform for open access books from the Faculty of Humanities and Social Sciences of the University of Zagreb (FF Open Press).

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