

CA19141



i N E A L

INTEGRATING NEANDERTAL LEGACY:  
FROM PAST TO PRESENT

## **iNEAL FACT BOOK**

### **iNEAL SESSION AT THE EAA CONFERENCE**

**BELFAST, 30 AUG – 2 SEPT 2023**



Funded by  
the European Union

## IMPRESSUM

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### GRAPHIC DESIGN

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This publication is based upon work from COST Action Integrating Neandertal Legacy: From Past to Present – iNEAL (CA19141), supported by COST (European Cooperation in Science and Technology).

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**Start of the Action**

October 15<sup>th</sup> 2020, end date: October 14<sup>th</sup> 2024

**At the start of the action**

27 people from 12 countries

**At present**

85 people from 32 countries (Albania (AL), Austria (AT), Azerbaijan (AZ), Belgium (BE), Bosnia and Herzegovina (BA), Bulgaria (BG), Croatia (HR), Cyprus (CY), Czech Republic (CZ), Denmark (DK), France (FR), Germany (DE), Greece (EL), Hungary (HU), Israel (IL), Italy (IT), Lithuania (LT), Malta (MT), Montenegro (ME), Netherlands (NL), North Macedonia (MK), Poland (PL), Portugal (PT), Romania (RO), Serbia (RS), Slovakia (SK), Slovenia (SI), Spain (ES), Switzerland (CH), Turkey (TR), United Kingdom (UK), United States (US).

**F/M**

32 females

**Inclusiveness Target Countries**

44 people from ITC countries

**Young researchers**

29 young researchers

Zur Erinnerung  
 an die Entdeckung  
 DES  
 Neandertal-  
 Menschen  
 DURCH  
 Prof. Dr. C. Fuhlrott  
 ELBERFELD  
 im Sommer 1856

*Integrating Neandertal Legacy: From Past to Present – iNEAL* is a COST (European Cooperation in Science and Technology) Action funded by the European Union.

Neandertals are the first human population that can be truly recognized as pan-European phenomenon. Since the discovery in a small cave in the Neander valley in Germany in 1856 (thus giving us both scientific and colloquial name for this ancient group of humans) the sites with their skeletal remains and/or cultural finds have been discovered all over Europe (and parts of Asia) and cover a period of more than 250 000 years. This resulted in a vast accumulation of various types of data.

However, in over the 150 years of Neandertal research, scientific methods, technological and methodological aspects, theory and practices developed often at a different pace, and sometimes in different trajectories, in different countries. The result is that it is often difficult to evaluate and compare various datasets dealing with Neandertal legacy.

Likewise, for numerous reasons there are problems related to access to data and information for various sites and finds. In addition, research questions asked by different groups and scholars from not only different disciplines, but sometimes from same disciplines but different traditions and different countries often are difficult to compare, even if their goal may be the same. Recent decades saw a rapid rise in communication of scientists from, for example, former “Eastern” and those from the “Western Bloc”. However, this is very much still based on individual connections and related to specific analyses and work. Thus, in order to compare data on various aspects of Neandertal legacy from Europe, it is crucial to build a long-term network of scientists, that, in turn will help create a usable and inclusive, inter- and multidisciplinary database and data sharing platform for all interested in Neandertals.

In addition, iNEAL Action is promoting a dialogue between scientists (with special attention given to early career investigators), and invite scientists from all relevant fields and disciplines, beyond the core group (such as scientists interested in dating methods and chronology, paleoenvironmental analysis, palynology, trace analysis etc.). In such way, datasets will be created with specific purpose of inclusiveness, thus providing data from various disciplines that can be incorporated to create a more detailed picture of Neandertals in temporal and spatial dimensions.

Another important aspect of the iNEAL Action is promoting awareness among various stakeholder groups of the importance of Neandertal heritage as an asset in education, tourism as well as other broader socio-economic spheres. At present, a lot of effort is being invested in research, presentation and interpretation of Neandertal heritage sites and other tangible remains like museum exhibits, however, there is a palpable lack of networking at higher-order levels, as well as across the stakeholder spectrum, which this Action aims to remedy. The intention is to build on the existing initiatives, including localized success stories in the heritage sector, like the Mettmann Neandertal Museum, or the Krapina Neandertal Museum, as regards musealised sites or interpretative centres and museums, to collaborative endeavours like the Ice Age Europe platform, which brings together a number of partners across Europe, even if its remit is somewhat broader in terms of temporal extent. What all these efforts are lacking is the inclusion of stakeholders other than academia, i.e. those that would create a more tangible link with real life: local communities, local and regional governments, private sector, SME's, tourism sector etc., who have long been disenfranchised in matters of management of archaeological heritage in general, and Neandertals in particular. In education, primary and secondary-school curricula in many countries might greatly benefit from a more elaborate and school-children's friendly didactic tools, which are at the core of the Action's agenda.

In summary, iNEAL is trying to bring together a wide variety of researchers, both from different countries, as well as from different fields of research in order to:

1. get a more detailed and much broader insight into various aspects of Neandertals (biology, including genomics, cultural aspects, geographic, environmental settings etc.) across space and over time;
2. create a data sharing platform, making it easier to detect data of interest, as well as identifying major gaps, resulting in new research questions, collaborations and projects;
3. stimulate international collaboration of scientists and create a wide network and platform for communication;
4. build a new outreach platform between scientists and scientific research and other interested parties (general public, small and medium enterprises, local communities, tourist workers etc.) creating a positive environment and basis for integrating Neandertal legacy into present;
5. address the career development of early career investigators. Through a participation in working groups, number of short term scientific missions and training schools, they will get training in various disciplines and develop a firm understanding of specific current practices that will help them in their future research.



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Main goals and tasks of the iNEAL are discussed and realized mainly through dedication and hard work of our Action members, through four Working Groups. Each Working group deals with different, but complementary tasks. Working Group 1 consist primarily (but not exclusively) of paleoanthropologists that will discuss and gather data on fossil evidence from Europe and Western Asia relevant to iNEAL action objectives (primarily Neandertals, but also other relevant evidence, such as Pleistocene fossils that predate and postdate Neandertal presence). Among main tasks of this Working Group is the exchange of knowledge and research experience on fossil data related to Neandertals from various sites and countries, and gathering relevant data on fossil remains. Working Group 2 consists primarily (but not exclusively) of Palaeolithic archaeologists that are dedicated to gathering, discussing, and sharing of various types of data on behavioural aspects of Neandertals and methodological aspects in palaeolithic studies. Working Group 3 brings together scientists involved with genomic research, and is dedicated to gathering, discussing, and sharing information on current developments in the field of paleogenomic research, relevant to Neandertal legacy. Working Group 4 utilizes the scientific based knowledge on Neandertals (based on the information and data gathered by Working Groups 1–3) and is dedicated to bringing the past to present – and to other stakeholders (professionals, such as museum and heritage specialists, but also tourism sector, SMEs, general public and so on).

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Marion Prevost  
Milica Radoković  
Cristina Real Margalef  
Anna Riethus  
Stefania Rocca  
Barbara Rodríguez-Álvarez  
Jurica Sabol  
Nicolo Scialpi  
Francesca Seghi  
Yam Shemesh

Christina Siali  
Natasha Singh  
Simona Sirvydaite-Sliupiene  
Damian Stefanski  
Joana Steffens  
Istvan Szegedi  
Petr Škrdla  
Dragana Šnjegota  
Veronika Unhurian  
Oz Varoner  
Delphine Vattese  
Veronica Venco  
Lia Vidas  
Marcel Weiss  
Tzuyi Yang  
Julia Zastrow  
Carlotta Zepilli  
Agné Žilinskaitė

Janković, I. 2022. CA 19141 Integrating Neandertal Legacy: From Past to Present. *Subterranea Croatica* 20/2:62-63.

Janković, I., 2022. COST Action(s): Added value and benefits. COST Info day. Ministry of Science and Education of the Republic of Croatia, Zagreb, 24th March 2022

Janković, I., 2022. iNEAL Action. New Interpretation Methods and Results of the Archaeological Heritage. Liszt, Institute, Hungarian Cultural Center, Zagreb.

Janković, I., 2022. Integrating Neandertal Legacy: from Past to Present. Presented at the 403 meeting of the Anthropological section of the Hungarian Biological Society. Budapest.

Janković, I., 2022. Neandertals – First Masters of Europe. Workshop Creation of Cultural Routes. AMZ Gallery, Zagreb, 6<sup>th</sup> December 2022.

Janković, I., 2023. Integrating Neandertal Legacy: From Past to Present (iNEAL) – akcija europske suradnje u znanosti i tehnologiji (COST), Obavijesti HAD-a LIV: 9-11.

Janković, I., Mihelić, S. 2021. Integrating Neandertal Legacy: From Past to Present. A new international network of Neandertal scholars launched as a COST Action at the end of 2020. *Ice Age Europe Magazine* Issue 5 (May 2021).

Vitas, Z. 2022. Mreža znanstvenika koja će premostiti jezični, disciplinarni i podatkovni jaz. Neandertalci. *Večernji List* special. 112-114.





**EAA 2021**  
**WIDENING HORIZONS**

**SESSION #500**  
**PROGRAMME BOOK**

**INTEGRATING  
NEANDERTAL LEGACY—  
FROM PAST  
TO PRESENT (INEAL)**

**THURSDAY, 9<sup>TH</sup> SEPTEMBER 2021**  
**11:00 – 17:30 CET**

**SESSION ORGANISERS**

Sanjin Mihelić  
Tamara Leskovar

**PRESENTATIONS AT CONFERENCES**

**INEAL Session Integrating Neandertal Legacy: From Past to Present**  
at the European Association of Archaeologists Conference  
9 September 2021, Kiel, Germany (held virtually)

**Session organizers**

Sanjin Mihelić, Tamara Leskovar

**Presentations**

Janković, I.: *Cost Action – Integrating Neandertal Legacy, From Past to Present (iNEAL)*; Voisin, J.-L., Hermon, S., Benazzi, S., DeGioanni, A., Hajdas, I., Hajdu, T., Harvati, K., Janković, I., Soficaru, A.D.: *A 2.0 catalogue of fossil hominids: Neandertals moving into the 21st century. a comprehensive knowledge repository on the Neandertal legacy*; Röding, C., Harvati, K.: *Neandertals – New insights from old bones*; Romagnoli, F., Melado, M., Cieśla, M., Elefanti, P., Maihailović, D., Pereira, T., Peresani, M., Škrdla, P., Stefański, D., Valde-Nowak, P.: *A tentative summary of variation in terminology, interpretation, problems and perspectives of small tool technology between Neandertals and early sapiens*; Marin-Arroyo, A., Rivals, F.: *New advances in zooarcheological methods unveil Neandertal behaviour*; Dobos, A.: *The Missile Palaeolithic research in Romania: drawbacks and achievements*; Stefanski, D., Cieśla, M., Valde-Nowak, P.: *On the edge of the ice sheet, Polish contribution to the research on the Neandertal man*; Lamotte A.: *Neandertal migrations through Europe and their legacy in northern and eastern France (mis5-3)*; Pereira, T., Cunha, P., Martins, A., Monteiro, M., Caninas, J., Henriques, F., Paya, A.: *Neandertal occupation in western Iberia during the MIS 6: the Monte da Revelada open-air site*; Auf-fermann, B., Schneider, B.: *Holding on. communication of content during the pandemic. the example of the Neandertal Museum*; Peeters, S., Zwart, H.: *Neandertal research, early human history and the issue of masculinity. the role of gender in scholarly and popular Neandertal discourse*; Dielemans, L.: *In the mind's eye. communicating Neandertal research through fiction*; Rodil, K., Danevičius, E., Stief, F.: *Exploring opportunities of cross-border digital heritage applications using embodied interaction in virtual reality simulations to disseminate the Neandertal legacy*; Riethus, A.: *“Neandertal: memories”. Writing an audio game about Neandertals*; Mester, Z., Lamotte, A.: *Long distance raw materials in the Middle Palaeolithic of northern Hungary: Neandertals or anatomically modern humans, who did what?*; Lamotte, A., Mester, Z., Ringer, A.: *Fractured leafpoints from Sajóbábony (Bükk mountain, Hungary): cultural-signature Neandertal legacy or shaping/using accident?*

**INEAL Session at the European Association of Archaeologists Conference**

3 September 2022, Budapest, Hungary

**Session organizers**

Sanjin Mihelić, Tamara Leskovar

**Presentations**

Condemi, S., Voisin, J.-L., Janković, I.: *Neandertal and Gravettian diets: a continuum or a revolution*; Rivals, F., Bocherens, H., Camarós, E., Rossel, J.: *Interactions among Neandertals, herbivores and carnivores: diet and ecological relationships in the Middle and Late Pleistocene*; Soressi, M., Carmignani,

## PRESENTATIONS AT CONFERENCES

L., Chu, W., Djakovic, I.: *The role of Neanderthals in shaping Homo sapiens behavior and culture 50-40ka - extended workshop(s) for synthesizing transcontinental research*; Verheyden, S., Jaubert, J., Marinova, E., Gurova, M.: *Mastering of underground areas by Neanderthals revealed by speleothems*; Been, E., Barzilai, O.: *Neanderthal burial practice in Western Asia*; Vasile, S., Dumitraşcu, V.: *New zooarchaeological data from La Adam cave Palaeolithic site (Dobrogea, SE Romania)*; Pereira, T., Raposo, L., Figueiredo, S., Salvador, M., Sousa, F., Cunha, Pedro P., Martins, A., Cunha-Ribeiro, J.P., Ferreira, C.: *Paleotejo, a network for Neanderthal and pre-Neanderthal investigation and heritage*; Romagnoli, F.: *Palaeolithic biases: some reflections on what is limiting Palaeolithic archaeology in academia and archaeological museums. A Spanish perspective*; Röding, C., Profico, A., Merkel, M., Harvati, K.: *Neanderthal morphology and the frontal bone from Hahnöfersand, Germany*; Škrdla, P., Nejman, L., Wright, D., Králík, M., Bartík, J.: *Is everything lost? Re-excavation potential of old cave excavation deposits*; Kandel, A., Bolus, M., Bruch, A., Groth, C., Hertler, C., Heß, J., Kanaeva, Z., Malina, M., Sommer, C., Haidle, M.: *New methods to explore old data: applying modern techniques from data science to compare Neanderthal behavior between MIS6 and MIS5E*; Peresani, M.: *Raptors claws, a Neanderthal brand: a discussion around shared practices across human communities in Southern Europe*; Marciani, G., Leplongeon, A., Bortolini, E., Kandel, A., Negrino, F., Ronchitelli, A., Riel-Salvatore, J., Moroni, A., Benazzi, S.: *Disentangling Middle Palaeolithic techno-complexes without using labels*; Peeters, S., Zwart, H.: *Neanderthals and "us": how the golden age of Neanderthal research challenges human self-understanding*; Florindi, S., Aranguren, B., Puzio, D., Revedin, A.: *Take a walk on the virtual side of Neanderthals. Exhibit solutions to travel inside Poggetti Vecchi (Central Italy)*; Mihelić, S.: *Neanderthals as stakeholders in cultural tourism: the story so far.*



**Integrating Neanderthal Legacy: Recent Results of Multi- and Interdisciplinary Research**  
**INEAL Session at the European Association of Archaeologists Conference**  
 2 September 2023, Belfast, Northern Ireland

**Session organizers**

Sanjin Mihelić, Ivor Janković, Tamara Leskovar, Francesca Romagnoli, Florent Rivals

**Presentations**

Rivals, F., Blasco, R., Rufà, A., Rosell, J.: *Unrevealing Neanderthal lifestyles at Teixoneres Cave: an example of a multi- and interdisciplinary approach applied to a MP site*; Livraghi, A., Rivals, F., Rendu, W., Peresani, M.: *Neanderthals' mobility and site occupation in the NE of Italy: combining zooarchaeology, dental wear and cementochronology to infer seasonality*; Cuevas-Gonzalez, J., Gallelo, G., Eixea, A., Díez-Canseco, D.: *Natural vs anthropogenic layers at the Los Aljezares MP open-air site fingerprinted by rare earth elements signatures*; Leventi, A.: *Microscopic insights when use-wear is no more. Results of a micro-wear analysis on Chatelperronian lithics from Quincay Cave, France*; Janković, I., Komšo, D., Radović, S., Ahern, J.C.M., Becker, R., Oberreiter, V., Vidas, L., Pinhasi, R.: *Neanderthals, Modern Humans, Saints: Recent research at Romuald's Cave, Istria, Croatia*; Shimelmitz, R., Hershkovitz, I., Weinstein-Evron, M.: *A critical view over the sequence of Tabun Cave, Israel, and its reflection on the Levantine MP Hominin populations*; Heydari-Guran, S.: *Evidence of fresh water turtle remains in the Neanderthal site of Bawa Yawan Rockshelter, West-Central Zagros Mountains, Iran*; Kuipers, K., Zwart, K., Soressi, M.: *The problem with reconstructions of symbolic behaviour in the Palaeolithic; how dualistic thinking still creates problems in the theoretical framework*; Been, E., Barzilai, O., Oz, A.: *The Neanderthal Trail in Israel, from the Mediterranean Sea to the Sea of Galilee*; Riethus, A., Auffermann, B.: *A joint digital archive for Neanderthal research.*

**PRESENTATIONS AT OTHER CONFERENCES**

Vidas, L., Silvestrini, S., Romandini, M., Lugli, F., Real Margalef, C., Radović, S., Janković, I., Benazzi, S.: *Filling in the blanks: the application of palaeoproteomics in faunal analysis.* 10th Scientific Conference Methodology and Archaeometry, Dec. 1st-2nd 2022, Zagreb, Croatia.

Vidas, L., Silvestrini, S., Lugli, F., Radović, S., Romandini, M., Janković, I., Benazzi, S.: *Palaeoproteomic analyses of osseous assemblages from Late Pleistocene sites in Istria, Croatia.* 3rd VCWAP – Virtual Conference for Women Archaeologists and Paleontologists, Mar 6th-8th 2023 (held virtually).

Vidas, L., Silvestrini, S., Lugli, F., Sommella, E., Salviati, E., Crescenzi, C., Campiglia, P., Janković, I., Benazzi, S.: *Glutamine deamidation rates of bone collagen at three Late Pleistocene sites in Istria (Croatia).* 29th EAA Annual Meeting, Aug. 30th-Sept 2nd, Belfast, Northern Ireland.

Romagnoli, F., Ciesla, M., Elefanti, P., Mihailovic, D., Pereira, T., Stefański, D., Valde-Nowak, P., Vukosavljevi, N., Mester, Z.: *On Microliths in Middle Palaeolithic: Start from scratch. Discussing problems and perspectives looking at shared taxonomies.* 64th Annual Meeting in Aarhus, Hugo Obermaier Society for Quaternary Research and Archaeology of the Stone Age, 11-15 April 2023, Aarhus, Denmark.

García Basanta, A., Morales, J.I., Romagnoli, F.: *Looking at new forms of dissemination: Integrating archaeological sites, updated knowledge of Neanderthals, and local communities.* 3rd Virtual Conference for Women Archaeologists and Paleontologists (online, 2023), AWAP-the Association for early-career Women Archaeologists and Paleontologists, 06-08 March 2023.

Romagnoli, F.: *Detecting biases in archaeological narratives in human evolution*. International Workshop “From World Heritage Sites to Communities of Knowledge”, Madrid & Burgos (Spain), 16-21 January 2023.

Perez, A., Rivals, F., Verttese, D., Sananiello F., Grimaldi, S., Thun Hoherstein, U.T.: *Mesowear and micro-wear analysis on Cervus elaphus and Capreolus capreolus teeth from the Middle and Upper Palaeolithic layers of Riparo Mochi and Riparo Tagliente*. XXI INQUA Congress, 13-20 July 2023, Rome.

Banda, M.: *Middle Palaeolithic Land Use in the Northern Adriatic: Preliminary Data from the Open A-Air Site of Campanož (Croatia)*. 88<sup>th</sup> Annual Meeting of the Society for American Archaeology. 29. March-02. April. Portland, OR, USA.



## PUBLICATIONS

Banda, M., Romagnoli, F., Komšo, D., Čuka, M., Karavanić, I. in press. *Exploring a novelty in the Middle Palaeolithic of Croatia: preliminary data on the open-air site of Campanož*. Quartär. International Yearbook for Ice Age and Stone Age Research.

Janković, I., 2022. CA 19141 Integrating Neanderthal Legacy: From Past to Present (iNEAL). *Subterranea Croatica* Vol. 20, No. 33 (2/2022):62-63.

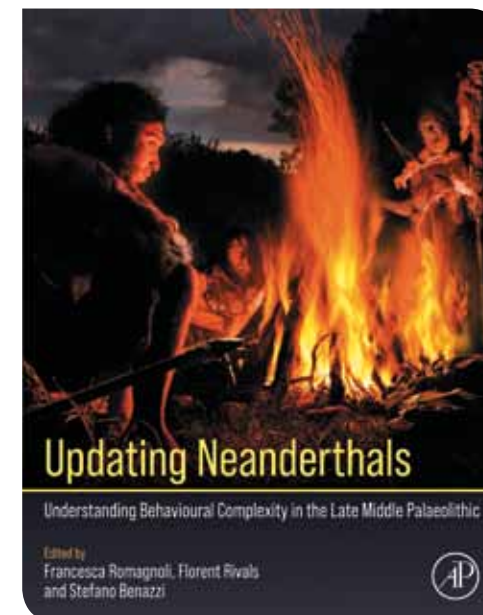
Janković, I., 2022. *Neandertals – First Masters of Europe*. In: Mihelić, S., Ščukanec Rezniček, Š, Balen, J., Janković, I. (Eds.) *Creation of Cultural Routes - experiences from the Danube's Archaeological eLandscapes Project*. Zagreb: Arheološki Muzej u Zagrebu. Pp. 87-103.

Janković, I., Mihelić, S. 2022. *Developing the Neanderthal Route through the iNEAL Network*. In: Mihelić, S., Ščukanec Rezniček, Š, Balen, J., Janković, I. (Eds.) *Creation of Cultural Routes - experiences from the Danube's Archaeological eLandscapes Project*. Zagreb: Arheološki Muzej u Zagrebu. Pp. 129-141.

Mihelić, S. 2022. *The European neanderthal Route Initiative*. In: Mihelić, S., Ščukanec Rezniček, Š, Balen, J., Janković, I. (Eds.) *Creation of Cultural Routes - experiences from the Danube's Archaeological eLandscapes Project*. Zagreb: Arheološki Muzej u Zagrebu. Pp. 75-83.

Mihelić, S., Janković, I. (eds.) 2022. *iNEAL. Integrating Neanderthal Legacy: From Past to Present*. European Cooperation in Science and Technology (COST).

Romagnoli, F. Rivals, F., Benazzi, S. (Eds.) 2022. *Updating Neanderthals: Understanding Behavioural Complexity in the Late Middle Palaeolithic*. Academic Press.



Marko Banda. *Understanding Middle Palaeolithic assemblage integrity through taphonomy and site patterning*. Universidad Autónoma de Madrid, Madrid, Spain.

Carolin Röding. *Hominin remains from Vindija*. Institute for Quaternary Palaeontology and Geology of the Croatian Academy of Sciences and Arts, Zagreb, Croatia.

Andrea Zupanchich. *Neanderthal daily life activities at Romualdova Pećina: insights from the analysis of use-wear and residues on flaked and non-flaked stone tools*. Centre for Applied Bioanthropology Institute for Anthropological Research, Zagreb, Croatia.

Davide Delpiano. *A Multi-Site and Multi-Approach Analysis of Late Middle Palaeolithic Backed Tools*. Université de Toulouse 2 Jean Jaurès – TRACES, Toulouse, France.

Owen Alexander Higgins. *Improvement of histological and histochemical analysis and use of fossil mammalian dental remains as proxy for environmental and human behavioural data*. University of Kent, Kent, UK.

Giulia Marciari. *Cognigrams of the last Neanderthals and first Sapiens tool behaviour in Italy*. Research Center 'The role of culture in early expansions of humans', Eberhard Karls University of Tübingen, Tübingen, Germany.

Andrea Perez. *Mesowear and microwear analysis on Cervus elaphus teeth from the Middle to Upper Palaeolithic layers of Riparo Mochi*. Institut Català de Paleocologia Humana i Evolució Social (IPHES), Tarragona, Spain.

Carla Figus. *Talar development: the ontogenetic trajectories of the Neanderthal talus*. Museo Nacional de Ciencias Naturales of Madrid, Madrid, Spain.

Francesca Seghi. *Human behaviour and faunal exploitation during the Middle Paleolithic*. Vrije Universiteit Brussel, Brussels Bioarchaeology Lab (BB-LAB), Brussels, Belgium.

Lia Vidas. *ZooMS identification of Middle Palaeolithic faunal assemblage of Romualdova pećina, Croatia*. Università di Bologna, Dipartimento di Beni Culturali, Ravenna, Italy.

Zlatko Perhoč. *Raw material of lithic artifacts of Eastern Adriatic Neanderthals*. Centre for Applied Bioanthropology, Institute for Anthropological Research, Zagreb, Croatia.

Meir Orbach. *Reconstructing diet and seasonality of the Perissodactyla from the open-air site of Nesh-er Ramla, Israel*. Institut Català de Paleocologia Humana i Evolució Social (IPHES-CERCA), Tarragona, Spain.

Ondřej Mlejnek. *Integrating Neanderthal Legacy: From Past to Present – Cooperation between Israel and the Czech Republic*. Ben-Gurion University of Negev, Beersheba, Israel.

Pere Gelabert. *Archeo-genetic perspectives for understanding the Carnivore-human interactions in El Miron cave*. Universidad de Cantabria, Santander, Spain.

Valentina Lubrano. *Zooarchaeological and taphonomic analysis to understand the duration of Neanderthal occupation at Teixoneres Cave unit III*. IPHES, Tarragona, Spain.

Sara Silvestrini. *Reconstructing the subsistence strategies and the faunal composition through ZooMS during the Middle-Upper Paleolithic transition*. Department of Evolutionary Anthropology, University of Vienna, Austria.



#### OTHER iNEAL GRANTS

Pınar Gültekin. *Evaluation of Antalya Karain cave as a palaeolithic heritage with the frame of cultural heritage tourism*. 2<sup>nd</sup> International Conference on Social Science Studies (IConSoS), İstanbul, Turkey. Inclusiveness Target Countries Grant.

Yaşar Selman Gültekin. *Neanderthal heritage in destination marketing and entrepreneurship: value production in cultural tourism*. 6<sup>th</sup> International Symposium of Education and Values (ISOEVA), Kemer, Turkey. Dissemination Conference Grant.

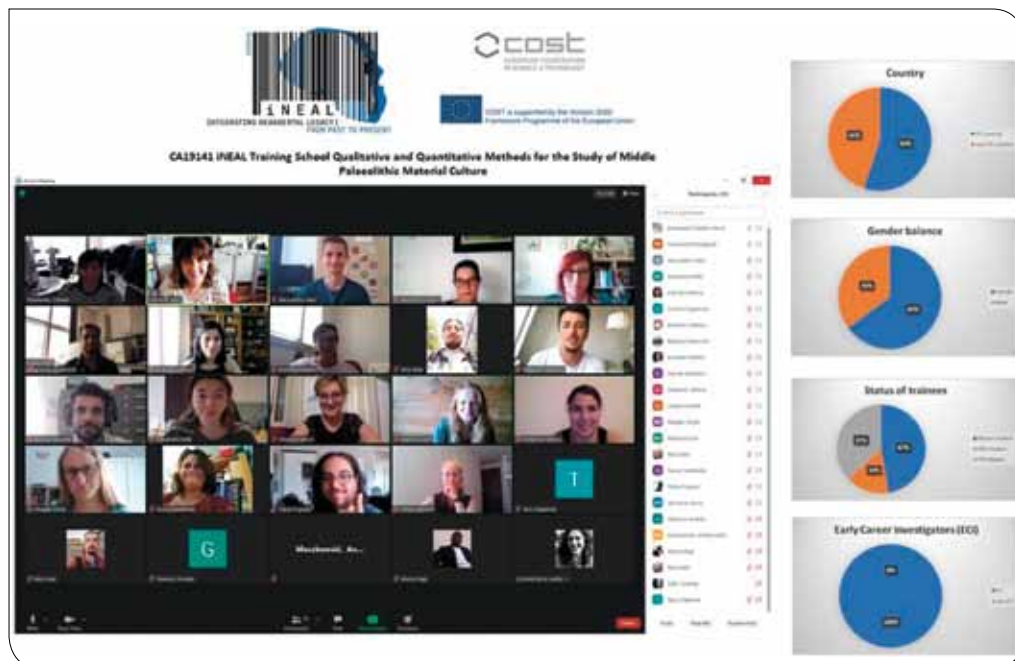
## TRAINING SCHOOLS

### **Qualitative and quantitative methods for the study of Middle Palaeolithic material culture.**

Università degli Studi "La Sapienza" di Roma, Rome, Italy/Universidad Autónoma de Madrid, Madrid, Spain (8-9 July 2021, on-line). Organizers: Emanuela Cristiani, Francesca Romagnoli. Trainers and topics: Francesca Romagnoli: *Lithic technology: human mobility and assemblage formation processes*; Andrea Zupancich: *Functional studies on tools*; Emanuela Cristiani: *Body ornaments and symbolism*; Ana Marin Arroyo: *Anthropic vs. non-anthropoc modifications on osseous remains*; Davide Delpiano: *Lithic technology and 3D*; Emanuela Cristiani: *Bone technology*; Andrea Zupancich: *Close range photogrammetry*; Francesca Romagnoli: *Shell tools*. 19 trainees participated in the training school.

### **Training School on valorization of Neanderthal heritage through the creation of cultural routes.**

Archaeological Museum in Zagreb, Croatia (27-29 September 2021, Zagreb, Croatia). Organizers: Sanjin Mihelić, Jacqueline Balen. Trainers and topics: Sanjin Milelić: *Towards a European Neanderthal cultural route*; Bärbel Auffermann: *Neanderthals – Museological aspects*; Vlasta Klarić: *How to create a cultural route – theory and practice WORKSHOP*; Marko Mele: *Creating a cultural route: best practice WORKSHOP*; Kasper Rodil: *VR Technology as offsite interpretation and learning tool*. Field excursion to Vindija and Krapina with onsite interpretation. 15 trainees participated in the training school.



## TRAINING SCHOOLS

### ***Introduction to 3D Geometric Morphometrics and the V.E.R.A. Method for Reconstructing Physical Activity.***

Eberhard Karls University of Tübingen, Tübingen, Germany (13-15 October 2021, Tübingen, Germany). Organizers: Katerina Harvati, Carolin Röding. Trainers: Alexandros Fotios Karakostis (theoretical and practical part); Costantino Buzi (theoretical and practical part); Carolin Röding (practical part). 12 trainees participated in the training school.



### ***Neanderthals in education.***

Neanderthal Museum, Mettmann, Germany. (26-28 April 2022, Mettmann, Germany). Organizers: Bärbel Auffermann, Beate Schneider, Till Knechtges. Trainers and topics: Beate Schneider: *The Museum, a place of education*; Elena Lewers: *Up for a time travel? Virtual Reality and history education*; Till Knechtges: *The Exhibition as Learning Environment - using the example of the Neanderthal Museum*; Beate Schneider: *Training Session I: Build your own [Neanderthal] Exhibition*; Miriam Plönißen: *Visitor orientation and educational activities*; Till Knechtges, Meritxell Fernández Coll: *Didactics and methodology of activity-oriented formats at Neanderthal Museum*; Beate Schneider: *Training Session II: From idea to concept: developing own programs*; Beate Schneider, Till Knechtges: *Presentation and discussion*; Beate Schneider: *Securing the results of the day*; Ivor Janković, Sanjin Mihelić: *Hands-on approach to Neanderthal legacy*; Mia Berg: *#Neanderthal - Communicating history in social media*; Meritxell Fernández Coll: *The evolution of live-online Tours*; Franziska Kersting: *"To the digital exhibition please follow this way" - an empirical study on the experience of cultural participation*; Sanjin Mihelić, Ivor Janković: *Workshop presentations*; Beate Schneider, Sanjin Mihelić: *Securing the results*. 14 trainees participated in the training school.



## TRAINING SCHOOLS

### ***The technological variability at the transition between Middle to Upper Palaeolithic.***

Czech Academy of Sciences, Institute of Archaeology, Brno, Czech Republic (4-6 May 2022, Brno, Czech Republic). Organizers: Petr Škrdla, Francesca Romagnoli. Trainers and topics: Petr Škrdla: *Bohunician*; Omry Barzilai: *Early Upper Paleolithic industries in the Middle East*; Petr Škrdla: *Training Session I: Bohunician lithics and refittings*; Zsolt Mester: *Szeletian in Hungary*; Adrian Nemergut: *Late Szeletian from Western Slovakia with special emphasis on Moravany-Dlhá type points*; Zsolt Mester, Adrian Nemergut: *Training Session II: Szeletian artifacts*; Francesca Romagnoli: *Middle-Upper Palaeolithic transition in Western Europe*; Vitaly Usik: *Middle-Upper Palaeolithic transition in Eastern Europe*. 21 trainees participated in the training school.



### ***Introduction to segmenting/visualizing image data from (micro)-CT scans.***

University of Bologna, Ravenna, Italy (8-10 June 2022, Ravenna, Italy). Organisers: Stefano Benazzi, Gregorio Oxilia. Trainers and topics: Timothy M. Ryan, Daniele Panetta, Gregorio Oxilia, Antonino Vazzana, Owen Alexander Higgins: *I TOPIC: Introduction to conventional radiology and High-Resolution Micro-CT and Nano-CT, Imaging with advanced radiation sources*; *II TOPIC: Introduction to Avizo's concept: how the software works. Getting started, raw data, Avizo preferences, file formats, data import*; *III TOPIC: Set parameters, filters, large data, clipping, slicing visualization, multiplanar view, volume rendering, isosurface creation, lines and sections, tools and applications*; *IV TOPIC: Resampling and cropping, slice alignment. Segmentation process: Automatic and manual segmentation, segmentation editor, surface generation and visualization. Difference between isosurface and surface, exporting data and measurements*; *IV TOPIC: Practical session on segmentation protocol and surface generation, visualization and editing*; *IV TOPIC: Preparing images for publications/presentations, simple animations and camera path*. 15 trainees participated in the training school.



## TRAINING SCHOOLS

### ***Introduction to Neanderthal palaeogenomic analyses for non-geneticists.***

Department of Evolutionary Anthropology, University of Vienna, Austria (18-19 July 2022, Vienna, Austria). Organizers: Ron Pinhasi, Daniel Fernandes. Trainers and topics: Daniel Fernandes: *A Quick Guide to Understanding Commonly Used Population Genetics Analyses in Anthropology (Part 1)*; Pere Gelabert: *A Quick Guide to Understanding Commonly Used Population Genetics Analyses in Anthropology (Part 2)*; Daniel Fernandes, Pere Gelabert: *Practical Training Session I: Introduction to Ancient Population Genetics for Non-Geneticists*; Martin Kuhlwilm: *Quantifying Neanderthal Legacy (Introgression) in Modern Populations*; Martin Kuhlwilm, Xin Huang: *Practical Training Session II: Quantifying Neanderthal Legacy (Introgression) in Modern Populations*; Aida Andrés: *Adaptive Introgression in Modern and Archaic Humans*; Aida Andrés: *Practical Training Session III: Adaptive Introgression in Modern and Archaic Humans*. 12 trainees participated in the training school.



### ***Neandertal and Homo sapiens Material Culture in Middle Paleolithic western Asia***

University of Haifa, Israel (14-16 March 2023, Haifa, Israel). Organizers: Omry Barzilai, Reuven Yeshurun, Ron Shimelmitz, Francesca Romagnoli. Trainers and topics: Israel Hershkovitz: *Human skeletal variability and hominids in the Levantine Middle Paleolithic*; Reuven Yeshurun: *Variability in hunting practices in the Middle Paleolithic Levant*; Florent Rivals: *Neanderthal hunting strategies and seasonality in the Middle Palaeolithic of Western Europe*; Mina Weinstein-Evron: *The material culture of the early Middle Paleolithic: A view from Misliya Cave, Mount Carmel*; Ron Shimelmitz: *Tabun and Skhul: Between Neanderthals and modern humans*; Liliane Meignen: *Kebara Cave : Neandertal lithic technical repertoire in the SW Asia Late Middle Paleolithic*; Omry Barzilai: *Lithic assemblages and hominids from Geula Cave, Mt. Carmel*; Gonen Sharon: *The shape of things to come – site function and technological innovations at Final Mousterian hunting locality of NMO*; All trainers: *Hands-on session: lithic assemblages from Tabun, Skhul, Geula, Nahal Aqev, Dimona, Misliya, Fara II, NMO, Nesher Ramle, Kebara*; Yossi Zaidner: *Nesher Ramla – Hominids and material culture in central Israel*; Mae Goder-Goldberger: *Hunter-Gatherers of the Lower Besor Basin during the Late Middle Paleolithic*; Maya Oron: *Cultural variability in the Negev desert during the Middle Paleolithic: the role of Nubian and centripetal Levallois knapping modes*; Daniella Bar-Yosef Mayer: *Middle Palaeolithic personal ornaments*; Ivor Janković: *The Vindija cave*; Andrew Kandel: *Exploring the ROCEEH Out of Africa Database (ROAD) from a Middle Paleolithic perspective*; Petr Škrdl: *Neandertals and Modern Human material culture in Moravia*; Francesca Romagnoli: *Neanderthal shell exploitation in Mediterranean Europe*; Marco Peresani: *Observing Late Neanderthals and early sapiens from research at Fumane cave: Present state and perspectives*; Field trip visit to the Mt. Carmel cave sites: Tabun, Skhul, el-Wad. 32 trainees participated in the training school.



**Paleogenomics: From sampling and data collection to multidisciplinary analyses.**

University of Vienna, Department of Evolutionary Anthropology, Vienna, Austria (19-20 September 2023). Organizers: Ron Pinhasi, Pere Gelibert. Trainers and topics: O. Cheronet: *A Quick Guide and Introduction to ancient DNA Sampling and data storage*; P. Gelibert: *Practical Training Session I: Introduction to Ancient Population Genetics for Non-Geneticists (Part 1)*; S. Sawyer, P. Gelibert: *Practical Training Session I: Introduction to Ancient Population Genetics for Non-Geneticists (Part 2)*; M. Kuhlwilm: *Quantifying Neanderthal legacy (introgression) in modern populations*; M. Kuhlwilm, X. Huang: *Practical training session II: Quantifying Neanderthal legacy (introgression) in modern populations*; M. Kuhlwilm, X. Huang: *Identifying selection processes in ancient genomes*; L. Rubio: *Gene and culture interaction*; P. Gelibert: *Interdisciplinary research and data integration*.

**Advancing into Palaeolithic Archaeology: Best practices in multidisciplinary studies.**

UAM-Universidad Autónoma de Madrid, Madrid, Spain (27-29 September 2023). Organizers: Francesca Romagnoli, María Soto, Florent Rivals. Trainers and topics: Kate Britton: *Understanding the palaeoecological and paleoenvironmental context of Late Pleistocene life using isotope zooarchaeology*; Florent Rivals: *Reconstruction of dietary habits in Neanderthals and other large mammals through dental wear analyses: New advances and limits*; Anna Rufà Bonache: *Bone taphonomy as a tool for understanding past human-animal interactions*; María Soto: *Multi-scalar Approaches to Lithic Raw Materials Characterisation*; Francesca Romagnoli: *From lithic items to human behaviours: Problems and perspectives in multidisciplinary stone tool description and interpretation*; Ivor Janković: *Neanderthal DNA studies*; Andrew Kandel: *ROAD database: theory and practice*; Juan Ignacio Morales Hidalgo, Francesca Romagnoli, María Soto & Florent Rivals: *Palaeolithic research in Northeast Spain*; Berkay Dinçer: *Middle Palaeolithic sites from Western Turkey*; Ron Shimelmitz: *New research in the Mount Carmel sites (Israel): Early episodes of Homo sapiens – Neanderthal interaction*.

**Presenting Neanderthals.**

Autonomous University of Lisbon, Department of History, Arts and Humanities, Lisbon, Portugal (3-5 October 2023). Organizers: Telmo Perreira, Ivor Janković, Sanjin Mihelić. Trainers and topics: Telmo Perreira: *Valuing the local Neanderthals*; Sara Cura: *Unlocking Science: find your voice through science communication Podcasts*; Sara Cura: *From Ideas to Airwaves: Crafting Your Own Science Podcast about Neanderthals*; Ivor Janković: *Evolution of the Neanderthal portrait*; Sanjin Mihelic: *Neanderthal display*; Ivor Janković and Sanjin Mihelic: *New trends on presenting Neanderthal*; Pedro Cura: *Neanderthal skills*; Pedro Cura: *Open door activity for the public*.

**An introduction to geometric morphometric methods for the study of human remains.**

University of Bologna, Department of Cultural Heritage, Bologna, Italy (9-11 October 2023). Organizers: Stefano Benazzi, Carla Figus. Trainers and topics: C. Figus: *Viewbox: Practical Session*; C. Figus: *Viewbox Template creation*; A. Profico: *Practical Session: R: an introduction*; A. Veneziano: *R: geometric morphometrics with R*; M. Melchionna: *R: advanced geometric morphometrics and virtual anthropology*; A. Profico: *R: analysis of long bone morphology and biomechanical properties*.

**iNEAL workshop on Integrative paleoecology: multiproxy analyses to reconstruct Neanderthal paleoecology, seasonality and mobility based on mammal assemblages.**

28th February, 2023. IPHES, Tarragona (held on-line).

**Organizer**

Florent Rivals (IPHES)

Florent Rivals: *Introduction to the workshop*; Hervé Bocherens: *Stable C and N isotopes and diet of large mammals*; Kate Britton: *Strontium isotope approaches to reconstructing faunal movements, and integration with sulphur isotopes and spatial assignment tools*; Klervia Jaouen: *Zinc isotopes and diet of past populations*; Antigone Uzunidis: *Meso- and microwear analyses on large herbivores*; William Rendu: *Cementum analysis on herbivores and seasonality of human occupations*; Mónica Fernández-García: *Stable oxygen isotopes on small mammals: paleoclimatic and paleoenvironmental implications*; Sarah Pederzani: *Oxygen stable isotopes and paleoclimatic reconstructions*; *Discussion on the advantages and limits for the integration of different proxies on the same assemblages*. 98 online participants.



**Roundtable: Laminar Productions in Pre-Up MIS 3 Contexts.**

Held on-line, 13th January, 2023.

**Organizers**

Jacopo Gennai, Davide Delpiano, Marco Peresani. (held on-line)

Leonardo Carmignani: *Laminar technology in the Italian Middle Paleolithic: Local tradition or exogenous derivation?*; Jacopo Gennai, Davide Delpiano, Laura Centi, Elisa Di Taranto, Rossella Duches, Marco Peresani: *Integrating the laminar into the unidirectional recurrent Levallois production in Fumane Cave MIS 3 layers*; Phil Glaubermann: *Levallois blank elongation in the late Middle Paleolithic assemblages at Barozh-12 and the Armenian Highlands: What's the big deal?*; Giulia Marciani: *The blade production from the lower levels of the Oscurusciuto rockshelter, Southern Italy*; Petr Škrdla: *Moravian Bohunician*. 43 online participants.

**International Lithic Taxonomy Group.**

Held on-line, 6<sup>th</sup> December, 2022.

**Organizers**

Andrew Kandel, Francesca Romagnoli.

Francesca Romagnoli: *Lithic Taxonomy: problems and perspectives in contemporary research on Palaeolithic studies*; Andrew Kandel: *Database data structure and systematization*.

Open discussion with all the participants: Academia is based on network and collaborations. After more than 100 years studying lithics and with apparently clear and shared terminology and concepts ¿Are we able to compare our results and data? Furthermore, paleoanthropologists, paleoneurologists and researchers not specialised in archaeology use lithic concepts to interpret different aspects of human behaviours across human evolution (but they have an acritical application and use of such labels). ¿How we define knapping concepts, standard measurement and morphological description, and lithic typological analyses in different schools and traditions? How we organise this information? 31 online participants.

**MANAGEMENT COMMITTEE MEETINGS****1<sup>st</sup> Management Committee Meeting (Kickoff meeting)**

15–16 October 2020, held on-line

**2<sup>nd</sup> Management Committee Meeting**

6 October 2021, held on-line

**3<sup>rd</sup> Management Committee Meeting**

10 October 2022, held on-line

**WORKING GROUPS MEETINGS****1<sup>st</sup> Working Groups Meeting**

3–4 May 2021, held on-line

**2<sup>nd</sup> Working Groups Meeting**

11–12 October 2021, Eberhard Karls University of Tübingen, Tübingen, Germany

**3<sup>rd</sup> Working Groups Meeting**

6–7 June, University of Bologna, Ravenna, Italy

**4<sup>th</sup> Working Groups Meeting**

18–19 October 2022, Cyprus Institute, Nicosia, Cyprus

**5<sup>th</sup> Working Groups meeting**

12–13 March, 2023. University of Haifa, Israel

**Interested in joining the action?****RELEVANT INFO AND LINKS**

<https://www.cost.eu/actions/CA19141/#tabs+Name:Working%20Groups%20and%20Membership>

<https://inealcost.inantro.hr/>





# Integrating Neanderthal Legacy



<https://www.e-a-a.org/ea2023>

Session #676

Recent Results of Multi- and  
Interdisciplinary Research



EAA DUBLIN 2023 30 AUG – 02 SEP

INTEGRATING NEANDERTAL LEGACY: RECENT RESULTS OF MULTI- AND INTERDISCIPLINARY RESEARCH  
Session #676

## ABSTRACT



Neandertals are a pan-European phenomenon and their skeletal remains or cultural evidence of their presence can be found in almost all European countries and further to the Western and possibly Central Asia and stem over a period of more than 200 000 years. This has resulted in vast amount of data on various aspects of their biological evolution and variability, as well as their behavioral aspects. Further, this data has been a subject of numerous studies from different scientific disciplines (i.e. archaeology, anthropology, genetics and so on). Thus, and especially in the light of new technical advancements (new studies using digital and virtual methods, ancient DNA from fossils and/or sediments and so on) allow a new insight into the past events. However, a truly integrated approach to the subject is still missing from Neandertal research.

The main aims of the session are to create a dialogue between scientists from different disciplines and using different approaches to the study of Neandertal legacy (biological and cultural) through presentation of new research and methods, thus promoting better understanding of the overall legacy of this Pleistocene population. Further, this dialogue will help to better evaluate the state of research and its potential for both new research, as well as for presentation and dissemination for general public.

The session is organized in partnership with the network of scholars gathered around COST Action 19141: Integrating Neandertal Heritage: From Past to Present.

SESSION ORGANISERS

SANJIN MIHELIC  
IVOR JANKOVIC  
TAMARA LESKOVAR  
FRANCESCA ROMAGNOLI  
FLORENT RIVALS

INTEGRATING NEANDERTAL LEGACY:  
RECENT RESULTS OF MULTI-AND INTERDISCIPLINARY RESEARCH



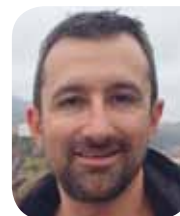
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**Tamara Leskovar**  
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SESSION #676

08:30

**Introduction**

08:45

**Florent Rivals, Ruth Blasco,  
Anna Rufà, Jordi Rosell**

*Unrevealing Neandertal lifestyles at Teixoneres  
Cave: an example of a multi- and interdisciplin-  
ary approach applied to a MP site*

09:00

**Alessandra Livraghi, Florent Rivals,  
William Rendu, Marco Peresani**

*Neanderthals' mobility and site occupation  
in the NE of Italy: combining zooarchaeology,  
dental wear and cementochronology to infer  
seasonality*

09:15

**Discussion**

09:30

**Jaime Cuevas-Gonzalez, Gianni Gallelo,  
Aleix Eixea, Davinia Díez-Canseco**

*Natural vs anthropogenic layers at the Los  
Aljezares MP open-air site fingerprinted by rare  
earth elements signatures*

09:45

**Ivor Jankovic, Darko Komšo, Sinisa Radović,  
James C.M. Ahern, Rory Becker,  
Victoria Oberreiter, Lia Vidas, Ron Pinhasi**

*Neanderthals, Modern Humans, Saints: Recent  
research at Romuald's Cave, Istria, Croatia*

INTEGRATING NEANDERTAL LEGACY:  
RECENT RESULTS OF MULTI-AND INTERDISCIPLINARY RESEARCH

SESSION #676

10:00

**Ron Shimelmitz, Israel Hershkovitz,  
Mina Weinstein-Evron**

*A critical view over the sequence of Tabun Cave, Israel, and its reflection on the Levantine MP Hominin populations*

10:15

**Discussion**

11:00

**Saman Heydari-Guran**

*Evidence of fresh water turtle remains in the Neanderthal site of Bawa Yawan Rockshelter, West-Central Zagros Mountains, Iran*

11:15

**Karel Kuipers, Hub Zwart, Marie Soressi**

*The problem with reconstructions of symbolic behaviour in the Palaeolithic; how dualistic thinking still creates problems in the theoretical framework*

11:30

**Ella Been, Omry Barzilai, Avishai Oz**

*The Neandertal Trail in Israel, from the Mediterranean Sea to the Sea of Galilee*

11:45

**Discussion**

SESSION #676

12:00

**Areti Leventi**

*Microscopic insights when use-wear is no more. Results of a micro-wear analysis on Chatelperronian lithics from Quincay Cave, France (POSTER)*

12:15

**Anna Riethus, Bärbel Auffermann**

*A joint digital archive for Neanderthal research (POSTER)*

# UNREVEALING NEANDERTAL LIFESTYLES AT TEIXONERES CAVE — AN EXAMPLE OF A MULTI-AND INTERDISCIPLINARY APPROACH APPLIED TO A MP SITE

FLORENT RIVALS

RUTH BLASCO

ANNA RUFA

JORDI ROSELL

02-09-2023 | 08:45h

SATURDAY

Florent Rivals<sup>1,2,3</sup>, Ruth Blasco<sup>2,3</sup>, Anna Rufà<sup>4,5</sup>,  
Jordi Rosell<sup>3,1</sup>

1 Institut Català de Paleoeologia Humana i Evolució Social (IPHES-CERCA), Tarragona, Spain

2 ICREA, Barcelona, Spain

3 Universitat Rovira i Virgili (URV), Departament d'Història i Història de l'Art, Tarragona,

Spain

4 ICArEHB – Interdisciplinary Center for Archaeology and the Evolution of Human

Behaviour, FCHS – Universidade do Algarve, Faro, Portugal

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## ABSTRACT

Recent advances in archaeological sciences, with the improvement of existing techniques or the conception of new ones, are fostering multi- and interdisciplinary studies for the study of past human behaviour. Multidisciplinary works on Middle Palaeolithic sites indicate a high capacity of Neandertals to adapt to different climatic and environmental conditions, which suggests a significant behavioural plasticity of this human species. In this work, we present the results from the Mousterian site of Teixonerres Cave (Moià, Barcelona, Spain). The geochronological, paleoecological and archaeological studies suggest a highly diverse and changing environment throughout MIS 3, with a combination (or alternation) between animals of temperate and cold environments. Throughout the sequence, Neandertal occupations changed progressively with a loss of territorial (and temporal) stability. In the lower unit IIIb, dated to ~ 50-90 ka, the groups settled intensely in the territory, while in the upper units (IIIa, IIb, IIa; <40 ka) the presence is characterised by short-term settlements that alternated with carnivore occupations, mainly by hyenas and cave bears. The recent discovery of human remains allowed for the inclusion of other disciplines, such as palaeoanthropology, proteomics and genetics. Experimental studies are currently developed to better understand the impact of carnivores at the site and the effect of taphonomic processes on the assemblages. Thus, Teixonerres Cave represents a key site to understand the evolution of the Neandertal lineage in the Northeast of the Iberian Peninsula, as well as the evolution of their subsistence strategies starting from the Middle Pleistocene until their disappearance in the MIS 3-2.

### Keywords

Neandertal, Subsistence strategies, Mousterian, Paleoeology, Iberian Peninsula

Alessandra Livraghi<sup>1,2</sup>, Florent Rivals<sup>3,4</sup>,  
William Rendu<sup>5</sup>, Marco Peresani<sup>2</sup>

1 Universitat Rovira i Virgili (URV), Departament d'Història i Història de l'Art, Avinguda de Catalunya 35, 43002, Tarragona, Spain.

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3 Institut Català de Paleoecologia Humana i Evolució Social (IPHES-CERCA), Zona Educacional 4, Campus Sescelades URV (Edifici W3), 43007, Tarragona, Spain.

4 ICREA, Pg. Lluís Companys 23, 08010, Barcelona, Spain.

5 CNRS - ArchaeoZOOlogy in Siberia and Central Asia - ZooSCAN<sup>®</sup>, CNRS - IAET SB RAS International Research Laboratory, IRL2013

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#### Keywords

Seasonality, Dental wear analyses, Middle Paleolithic, Settlement dynamics, Mobility, Zooarchaeology

## ABSTRACT

The study of the settlement dynamics and the spatial temporal organization of the human groups during the Middle Palaeolithic has always been a challenging task. A valuable help is offered by the observation of the seasonal organization of the activities and the timing of site occupation, which both document the choice made by Neanderthals in managing the environmental resources. In this scenario, some valuable methods can be applied to teeth, such as the analysis of stable isotopes, the study of tooth eruption and replacement patterns, the dental micro- and mesowear analyses and the cementochronology technique. With this aim, we integrated traditional zooarchaeological studies with dental wear analyses and cementochronology to molars from large game exploited by the human groups at De Nadale, San Bernardino and Fumane Caves (North-east of Italy). Focusing on the traces observable on the occlusal surface of the teeth and comparing them with samples of extant ungulates, dental wear analyses gave positive results in defining the extent of site occupation. Cementum analysis instead provides information about the seasonality thanks to the observation of the season at death of the game. With the support of recent multi-disciplinary studies on lithic industry, raw material procurement and intra-site spatial distribution the present contribution also gives significant information about the nature of the anthropogenic deposits themselves, characterizing the three sites as short-term occupation, probably linked to a specific season. Moreover, the present study has been an important testing ground to check the reliability of a new multi-proxies technique that integrates tooth wear analyses and cementochronology. This combined approach allowed us to double-check the results and obtain higher resolution data, overcoming possible lack of information caused by the application of a single technique.

# NEANDERTHAL'S MOBILITY AND SITE OCCUPATION IN THE NORTH-EAST OF ITALY— COMBINING ZOOARCHAEOLOGY, DENTAL WEAR AND CEMENTOCHRONOLOGY TO INFER SEASONALITY

ALLESANDRA LIVRAGHI

FLORENT RIVALS

WILLIAM RENDU

MARCO PERESANI

02-09-2023 | 09:00h

SATURDAY



# NATURAL VS ANTHROPOGENIC LAYERS AT THE LOS ALJEZARES MIDDLE PALAEOLITHIC OPEN-AIR SITE FINGERPRINTED BY RARE EARTH ELEMENTS SIGNATURES

JAIME CUEVAS-GONZALEZ

GIANNI GALLELLO

ALEXIA EIXEA

DAVINIA DIEZ-CANSECO

02-09-2023 | 09:30h

SATURDAY

Jaime Cuevas-Gonzalez<sup>1</sup>, Gianni Gallelo<sup>2</sup>,  
Aleix Eixea<sup>2</sup>, Davinia Díez-Canseco<sup>1</sup>

<sup>1</sup> University of Alicante

<sup>2</sup> University of Valencia

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## ABSTRACT

Los Aljezares represents one of the few Middle Palaeolithic open-air sites in the Iberian Peninsula. The data provided from the excavated levels I and II, showed that this site probably was a passage point for Neanderthal population between Mediterranean coast and the interior of the Iberian Peninsula. The low archaeological record is pointing out to sporadic human activities related to lithic procurement, hunting and woodworking. However, the anthropogenic contribution in the development of these levels remains unclear. In order to understand the development history of the levels I and II and the anthropogenic signals in sediments, several samples were taken across six columns and from each section the sampling was carried out at different depths through 1m deep sections. Major, minor and trace elements including rare earth elements were determined employing XRF and ICP-MS. Results were processed employing multivariate statistics and cross-referenced with sedimentological and archaeological data to aid interpretation. The analysis highlights the anthropogenic or natural origin of the majority elements. A correlation between sedimentary layers, facies and REE distribution is shown through the levels. Moreover, an anomaly of phosphorus would be related to biogenic hydroxyapatite most likely linked to the human activity of managing biotic resources. The results show that REE provide interesting details regarding the levels history, and therefore help archaeologists to better understand the occupation, use and abandonment phases of the site.

### Keywords

Geoarchaeology, Rare Earth Elements, Open-air site, Middle Palaeolithic

Ivor Janković<sup>1,2</sup>, Darko Komšo<sup>3</sup>, Sinisa Radović<sup>4</sup>,  
James C.M. Ahern<sup>2</sup>, Rory Becker<sup>5</sup>,  
Victoria Oberreiter<sup>6,7</sup>, Lia Vidas<sup>1</sup>, Ron Pinhasi<sup>8,7</sup>

1 Centre for Applied Bioanthropology, Institute for Anthropological Research, Zagreb, Croatia

2 Department of Anthropology, University of Wyoming, Laramie, USA

3 Archaeological Museum of Istria, Pula, Croatia

4 Institute for Quaternary Palaeontology and Geology, Croatian Academy of Sciences and Arts, Zagreb, Croatia

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## ABSTRACT

Romuald's cave in Istria is a well known archaeological site that was visited by many for different reasons. According to the legend, it was a place where St. Romuald lived for several years around the year 1000, which caused numerous visits by pious inhabitants of the regions in the past. However, archaeological excavations provided evidence that the cave was visited since the Pleistocene. A Mousterian sequence testifies that the site was visited by Neandertals, while the upper layers yielded material from (most likely) two different phases of the Upper Palaeolithic. This is also supported by the recent discovery of the Palaeolithic cave paintings in the main channel of the cave. Here we present an overview of preliminary analysis of archaeological, zooarchaeological, anthropological, genomic, and other of data from the site that will provide a more detailed insight into the site use and behavior of the Pleistocene hunter-gatherers in the region. The research was supported by the Croatian Science Foundation (grants no. UIP-11-2013-7789 and IP-2019-04-7821, PI: Ivor Janković) and the University of Vienna "Mineralogical Preservation of the Human Biome from the Depth of Time (MINERVA)" Research Platform, (PI: Ron Pinhasi).

### Keywords

Neandertals, Palaeolithic archaeology, Prehistory, Croatia

# NEANDERTALS, MODERN HUMANS, SAINTS — RECENT RESEARCH AT ROMUALD'S CAVE, ISTRIA, CROATIA

IVOR JANKOVIĆ

DARKO KOMŠO

SINIŠA RADOVIĆ

JAMES C. M. AHERN

RORY BECKER

VICTORIA OBERREITER

LIA VIDAS

RON PINHASI

02-09-2023 | 09:45h

SATURDAY

# A CRITICAL VIEW OVER THE SEQUENCE OF TABUN CAVE, ISRAEL, AND ITS REFLECTION ON THE LEVANTINE MIDDLE PALEOLITHIC HOMININ POPULATIONS

RON SHIMELMITZ

ISRAEL HERSHKOVITZ

MINA WEINSTEIN-EVRON

02-09-2023 | 10:00h

SATURDAY

Ron Shimelmitz<sup>1</sup>, Israel Hershkovitz<sup>2</sup>,  
Mina Weinstein-Evron<sup>1</sup>

<sup>1</sup> University of Haifa

<sup>2</sup> Tel Aviv University

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## ABSTRACT

Tabun Cave, Mount Carmel, Israel, constitutes a major landmark in the research of human evolution due to its exceptional long sequence and the presence of several hominin remains within the Middle Paleolithic layers, which are attributed to different hominin populations. Thus, it constitutes one of the key localities to address inter hominin group encounters long before occurring in Europe. The Middle Paleolithic sequence that is commonly addressed through a triple division of three superimposed phases, or type industries – ‘Tabun D’, ‘Tabun C’ and ‘Tabun B’ – is the result of the pioneering work of D.A.E. Garrod between 1929-1934. Even a century after, this “classical” sequence is still considered a reference yardstick for the onset and subsequent proliferation of the Levantine Middle Paleolithic. A. Jelinek’s excavations at the site during 1967-1971, already demonstrated the high variations along the sequence and provided a wider perspective that combined behavioral and environmental proxies from layers paralleling Garrods’ layers C and D. Nonetheless, high-resolution investigation to better grasp and reconstruct the complexity of hominin populations that roamed Mount Carmel during the Middle Paleolithic, addressing their behavioral patterns, episodes of migration and potential interactions, alongside reconstructing the environmental changes, is still much needed. In this presentation we use the results of our new multi-disciplinary excavation project at the upper part of the sequence, Tabun B, that was not excavated since the 1930s, alongside our on-going work on the materials of former excavations at Tabun, to re-evaluate the complexity of the regional Middle Paleolithic sequence and provide a critical review of what we know and do not know of the various hominin populations at this key site.

### Keywords

Middle Paleolithic, Migration, Levant

Saman Heydari-Guran<sup>1</sup>

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## ABSTRACT

Four seasons of systematic excavations in the Bawa Yawan rock shelter in the West-Central Zagros Mountains, led to the discovery of five geological layers (GH 1 to 5) with hominin occupations from the Middle to Late Paleolithic periods. The lower part of layer two to five in Bawa Yawan have been associated with Middle Paleolithic cultural materials including lithic artefacts, fauna and a Neanderthal tooth. In this section along with significant remains of a wide range of fauna have been found including various herbivores species such as Large and small mammals like Bovidae antilopinae, Ovis/ Capra or Gazella and Equidae. Among these faunal remains a significance number of fresh-water turtle bones were found as well. These finds in the Bawa Yawan Rockshelter indicate that the Neanderthals beside their substance strategies on terrestrial preys, have also focused on diverse food spectrum such as aquatic food sources in this part of the world.

### Keywords

Neanderthal, Zagros Mountains, Fresh water turtle, Diverse food spectrum

# EVIDENCE OF FRESH WATER TURTLE REMAINS IN THE NEANDERTHAL SITE OF BAWA YAWAN ROCKSHALTER, WEST-CENTRAL ZAGROS MOUNTAINS, IRAN

SAMAN HEYDARI-GURAN

02-09-2023 | 11:00h

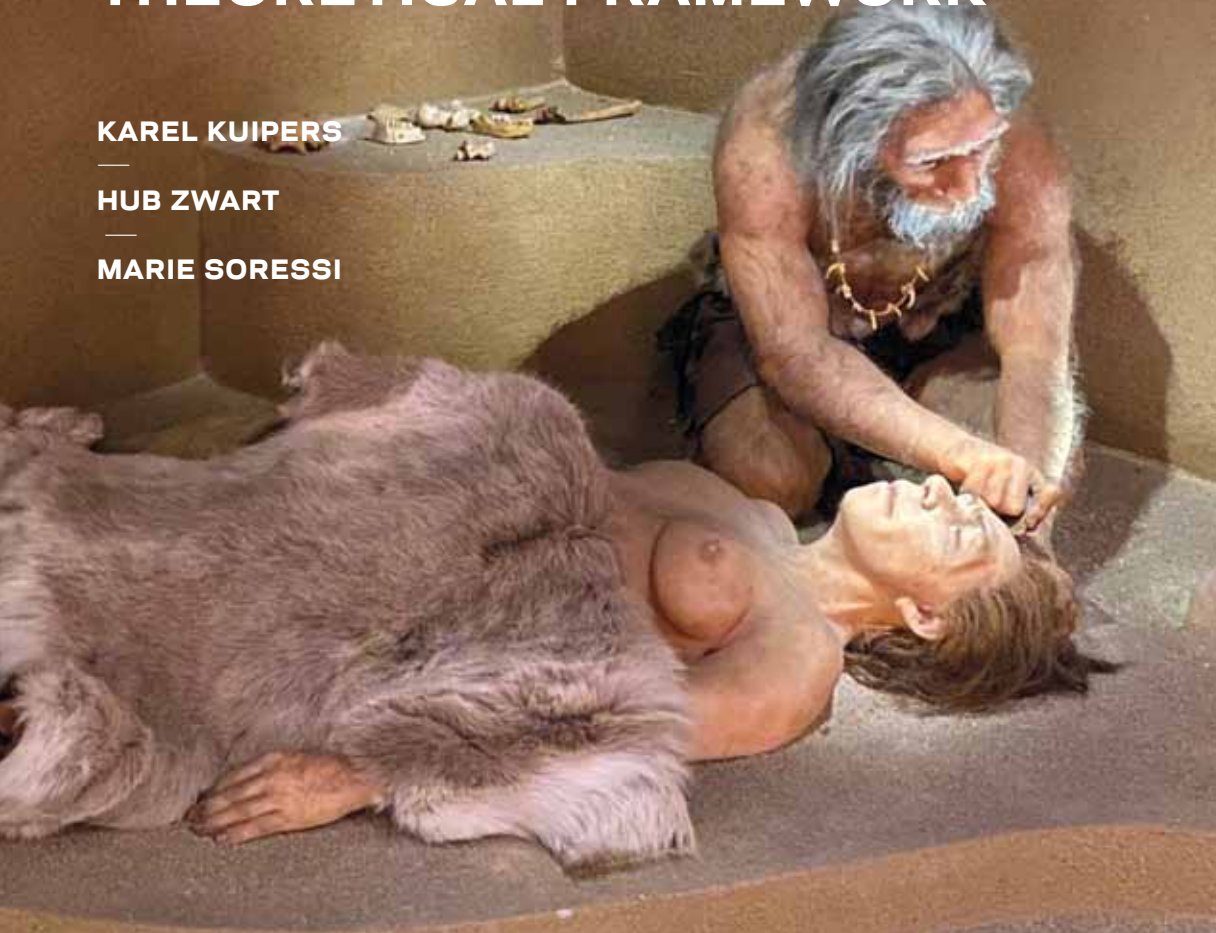
SATURDAY

# THE PROBLEM WITH RECONSTRUCTIONS OF SYMBOLIC BEHAVIOUR IN THE PALAEOLITHIC, HOW DUALISTIC THINKING STILL CREATES PROBLEMS IN THE THEORETICAL FRAMEWORK

KAREL KUIPERS

HUB ZWART

MARIE SORESSI



02-09-2023 | 11:15h

SATURDAY

Karel Kuipers<sup>1,2</sup>, Hub Zwart<sup>2</sup>, Marie Soressi<sup>1</sup>

1 Faculty of Archaeology, Leiden, The Netherlands

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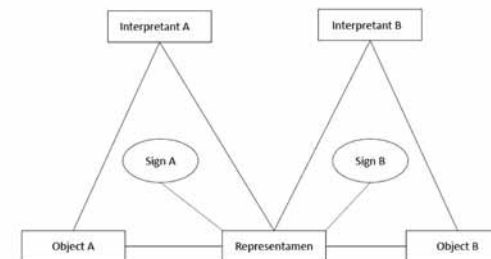
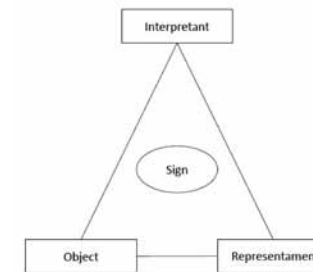
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## ABSTRACT

In recent years, the concept of 'symbolic behaviour' has emerged as the defining property of 'humanness', effectively taking the place of 'modern behaviour' in the discussion about hominins' cognitive capacities. While some archaeologists do not give a clear definition of what exactly a 'symbol' is, typically archaeologists tend to favour a definition of the Symbol based on Charles Alexander Peirce's semiotic theory. Yet, if we consistently use his view on how the symbolic sign operates, it is practically impossible to prove whether an archaeological artefact from the Palaeolithic was a symbol or not. In a Peircean definition, identifying something as a symbol relies heavily on the role of the interpretant, a means to interpret a semiotic sign, which is something that is lacking while excavating the Palaeolithic. In an attempt to reconstruct signs from the Palaeolithic, the archaeologists that favour this framework in fact create a parallel sign which may, or may not be a correct reconstruction. In addition, recent studies have shown that animals may be able to exhibit behaviour that could be interpreted as symbolic when the same general standards are applied. These two issues make the concept a questionable marker for humanness, as well as a dubious tool for determining extinct hominins' cognitive capacities. This tension in the theoretical framework could be seen as symptomatic of the underlying dualistic notion that the Symbol would be something Cultural, in direct opposition to Nature.

### Keywords

Semiotics in archaeology, Human cognitive evolution, Neandethal art, Behavioural modernity, symbolism in the palaeolithic



Ella Been<sup>1</sup>, Omry Barzilai<sup>2</sup>, Avishai Oz<sup>3</sup>

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## ABSTRACT

Israel is blessed with numerous Middle Palaeolithic sites. These were occupied by two types of hominins, Neandertals and Homo sapiens. Diagnostic fossil remains of the two species have been discovered in the Carmel Mountain, Jezreel valley and the Galilee in caves (Neandertals and H. sapiens) and open-air sites (Neandertals). The absolute chronology of the Israeli Middle Paleolithic fossils indicates that H. sapiens existed there between 170 and 90 ka and again from 55 ka on; Neandertals existed in that region between ca. 120 ka and ca. 55 ka. Moreover, the same area also contains human remains from much earlier periods in human evolution. Those include the remains of early Pleistocene hominin fossils (H. erectus sensu lato) from Ubeidiya. The purpose of the Neandertal trail is to let the passenger/Hiker experience the lives of Neandertals in the Mediterranean woodland by walking between their main occupation sites (caves and open-air sites), water fountains, raw material outcrops, mountain trails and natural vegetation. The trail will start at the famous Neandertal cave - Kebara, not far from the Mediterranean Sea shore and will end at Amud cave near the Sea of Galilee. To enhance the understanding of the complexity of Neandertals lives during the Middle Paleolithic in Israel the trail will pass through the major H. sapiens sites as well (Skhul, Qafzeh) and would include an important visit to the World Heritage Site - 'Nahal Mearot'. As both Neandertals and H. sapiens have probably evolved from H. erectus sensu lato, the trail will include the major early Pleistocene sites including the open-air site of Ubeidiya. In our talk we will present the 70 kilometres trail which will be divided into five segments (one walking day per segment).

### Keywords

Kebara cave, Amud cave, Early H. sapiens, Hominin, Pleistocene

# THE NEANDERTAL TRAIL IN ISRAEL, FROM THE MEDITERRANEAN SEA TO THE SEA OF GALILEE

ELLA BEEN

OMRY BARZILAI

HUB ZWART

AVISHAI OZ

02-09-2023 | 11:30h

SATURDAY

# MICROSCOPIC INSIGHTS WHEN USE-WEAR IS NO MORE

## RESULTS OF A MICRO-WEAR ANALYSIS ON CHÂTELPERRONIAN LITHIC FROM QUINÇAY CAVE, FRANCE

POSTER

ARETI LEVENTI

02-09-2023 | 12:00h

SATURDAY

Areti Leventi<sup>1</sup>

<sup>1</sup> Leiden University

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### ABSTRACT

Micro-wear analysis aims to reconstruct what type of activities were performed on archaeological sites and how objects were used. By applying this method, our research focuses on exploring the function of Châtelperronian end scrapers from the cave site of Quinçay, in a context associated with the demise of late Neandertals approx. 40.000 years ago. Our main questions concern the function of these tools in relation to the impact of taphonomy on use-wear preservation within the stratigraphic sequence. The micro-wear analysis on 40 Châtelperronian end scrapers from two stratigraphic layers showed use-wear traces on 17 artefacts interpreted as used for scraping hide and bone, whereas the rest of the lithics indicated wear traces related to taphonomic alterations affecting the natural surfaces of the end scrapers. We focus on these wear patterns from taphonomic alterations, while assessing the preservation of those artefacts within their stratigraphic context. With both low and high approaches, our final interpretation was conducted in comparison with experimental use-wear traces from a flint reference collection in Leiden University.

In conclusion and related to our research, we emphasize on the need to investigate the Châtelperronian assemblage with such a method, by means of exploring not only the function of these objects or the intra-site activities, but also the potential interconnectivity, and the taphonomic impact in such archaeological context.

#### Keywords

Châtelperronian industry, Quinçay cave, micro-wear analysis, taphonomy, lithics



Anna Riethus<sup>1</sup>, Bärbel Auffermann<sup>1</sup>

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## ABSTRACT

The preservation of archaeological finds and fossils via 3D scanning plays an ever growing important role in today's archaeological research and heritage management. Having an easily accessible platform to upload, share and access international data on tools, fossils, art and comparative material both provides a valuable database for researchers worldwide as well as strengthens our international research community. Neanderthal Museum in Mettmann, Germany, recognized this development very early on: already in the museum's first mission statement from 1996, the development of a digital database on the cultural heritage of Neanderthals is named as a central task. Its former database project NESPOS established an internationally accessible online database and collected anthropological and archaeological data related to Neanderthal research and human evolution, including 3D scans, CT scans, scanned literature, site information, images and tables.

Since February 2022, the new digital archive of Neanderthal museum continues this task: the archive aims to support researchers worldwide. Our archive specializes on Human fossils, Stone Age Artefacts and Ice Age Art. This poster presents the functions and opportunities of using the archive, highlights advantages for research, and invites the research community to share and expand the collections together.

### Keywords

Digital, Archive, Database, Online, 3D, platform

# A JOINT DIGITAL ARCHIVE FOR NEANDERTHAL RESEARCH

## POSTER

The poster features a large computer monitor displaying a 3D model of a Neanderthal skull fragment. Below the monitor are three logos: 'Die Beauftragte der Bundesregierung für Kultur und Medien', 'NEU START KULTUR', and 'DEUTSCHE DIGITALE BIBLIOTHEK'. To the right, a smartphone displays the 'NEANDERTHAL MUSEUM DIGITAL ARCHIVE' website. The website content includes a welcome message, a description of the archive's focus on human fossils, stone age artefacts, and ice age art, and instructions on how to explore the collections. At the bottom of the smartphone screen, a small image of a Neanderthal skull is visible.

ANNA RIETHUS

BÄRBEL AUFFERMANN

02-09-2023 | 12:15h

SATURDAY

