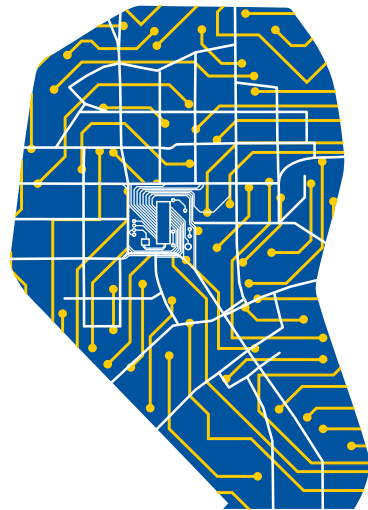


# CHECK OBJECT INTEGRITY

Book of Abstracts



CAA  
2019

KRAKÓW

Institute of Archaeology of Jagiellonian University  
Polish National CAA Chapter



JAGIELLONIAN UNIVERSITY  
IN KRAKÓW

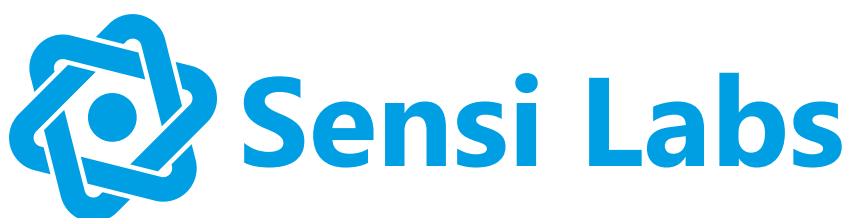
Conference held under the honorary patronage  
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Kraków

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Kraków



Muzeum Krakowa

47<sup>th</sup> Computer Applications and Quantitative Methods in Archaeology

Annual Conference

# CHECK OBJECT INTEGRITY

## Book of Abstracts



Institute of Archaeology of Jagiellonian University

Polish National CAA Chapter



JAGIELLONIAN UNIVERSITY  
IN KRAKÓW

KRAKÓW 2019

**Honorary Committee:**

prof. dr hab. Jan Świąch *Dean of the Faculty of History of Jagiellonian University in Kraków*

prof. dr hab. Paweł Valde-Nowak *Head of the Institute of Archaeology of Jagiellonian University in Kraków*

prof. dr hab. Ewdoksia Papuci-Władyka *Head of the Department of Classical Archaeology*

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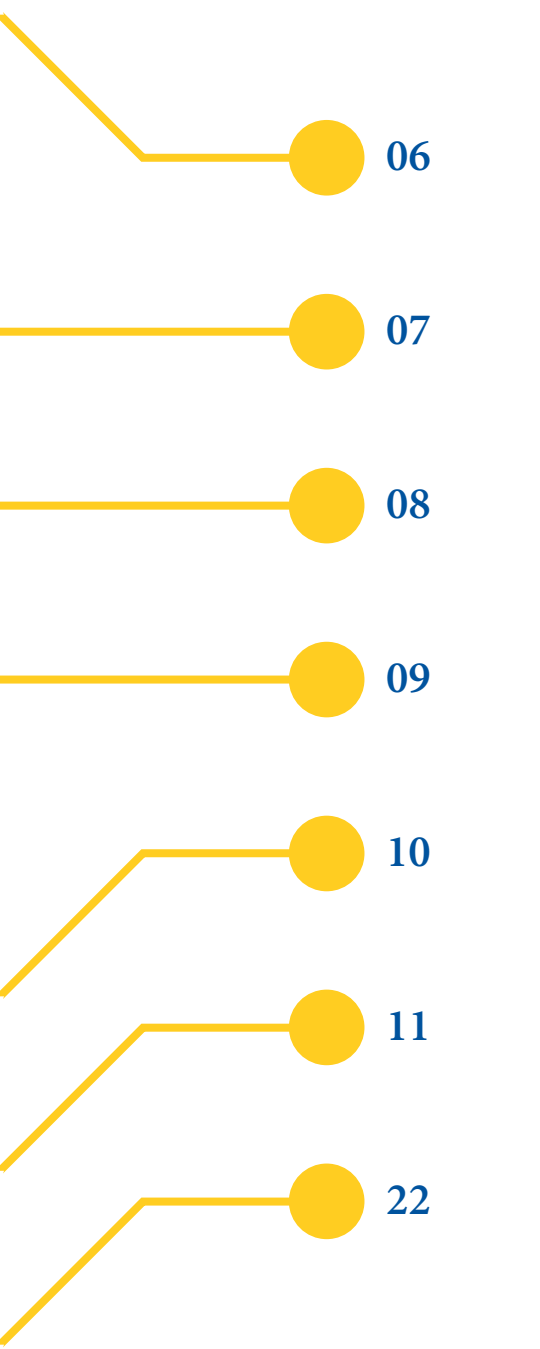
Barbara Zając

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## WI-FI - ACCESS

SSID: WiFi\_UJ  
User: maximumwifi@uj.edu.pl  
Password: CAA2019@uj

# WITAMY!

Dear CAA Members  
and Annual Conference Attendees,

It is with great pleasure to welcome the participants of the Annual CAA Conference “Check Object Integrity”, hosted by Kraków and Jagiellonian University. This event is closely connected with the scientific interests developing at our university, especially in the recent advancements in the field of computer technology. For years, we have been championing efforts to improve the quality of archaeological research with the support of computer applications and quantitative methods. The CAA meetings create an excellent platform to exchange ideas and experiences in this area. I would like to express my gratitude to all participants of the conference and its organizers for maintaining the tradition of these meetings and to ensure that they are being kept at the highest scientific level. I am convinced that Kraków with all its heritage of centuries-old cultural development, history and intellectual achievements, will provide a conference with appropriate atmosphere for the scientific discourse. I wish you all a successful meeting and a pleasant stay at Jagiellonian University.

**Prof. Paweł Valde-Nowak**  
Head of the Institute of Archaeology of  
Jagiellonian University in Kraków

Dear Colleagues,

It is a great pleasure to welcome you all here in Kraków, at Jagiellonian University to the 47<sup>th</sup> series of Computer Application and Quantitative Methods in Archaeology conferences. Our city, unlike others, is a great combination of history and tradition with modernity. On one hand, there is the 1000-year history of Kraków with the second oldest university in Central Europe, and on the other hand there are modern research and development centres, inter-collegiate synchrotron and tens of thousands of students.

We are delighted that the conference has been organised by our team from the Institute of Archaeology, which is the oldest Polish archaeological research institution. The Institute has been conducting research around the world e.g. from Southern and Northern Americas through Europe and the Middle East, to the Altai Mountains.

It is already the 47<sup>th</sup> meeting of the CAA community. Throughout this time, since the 1<sup>st</sup> CAA meeting, archaeologists have been exchanging their experiences of the usage of computers and statistical methods. The CAA conferences have become one of the most crucial events within the archaeological community interested in the development of scientific methods of acquiring and analysing the research of our discipline.

The conference has been prepared for you by the Organizing Committee and a group of volunteers from our Institute. On their behalf, I would like to wish you a wonderful conference but also to have a good time in vernal Kraków.

**Łukasz Miszk**  
Head of Organizing Committee

# CITY CENTER MAP



**CONFERENCE VENUE**  
Auditorium Maximum (ul. Krupnicza 33)



**ICEBREAKER PARTY**  
Collegium Maius (ul. Jagiellońska 15)



**WORKSHOPS**  
Collegium Minus (ul. Gołębia 11)  
Collegium Witkowski (ul. Gołębia 13)



**CONFERENCE DINNER**  
Mangha Museum (ul. Marii Konopnickiej 26)

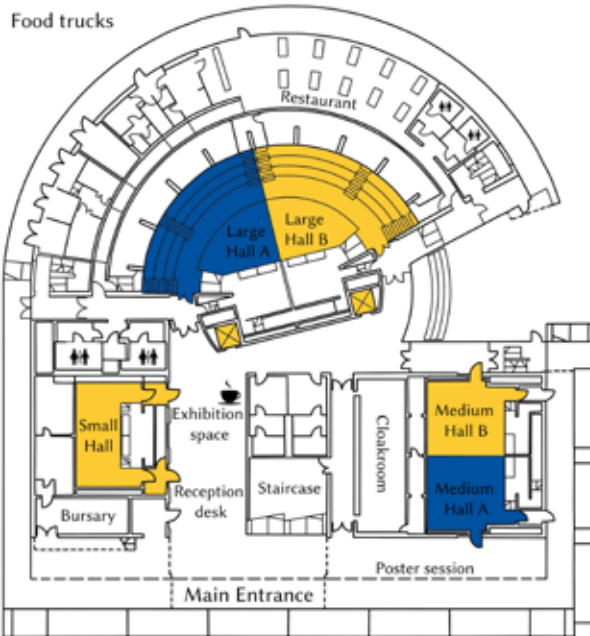
# VENUE

## AUDITORIUM MAXIMUM

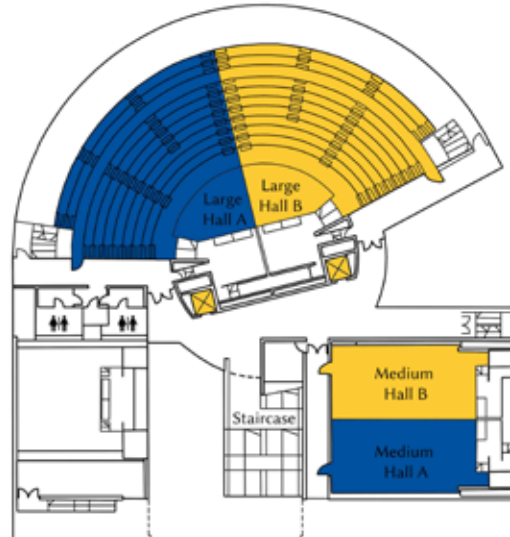
(address: ul. Krupnicza 33)

The conference takes place in a modern building of Jagiellonian University located on Krupnicza Street within a walking distance to the Main Square.

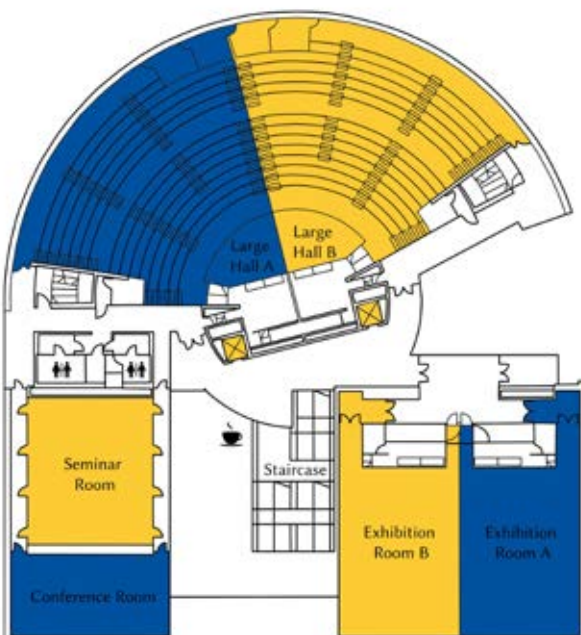
Opened in 2005, Auditorium Maximum contains various rooms adapted for conference and teaching purposes, including a large amphitheatre hall. Spacious hallways and the lounge are the areas where coffee breaks and poster sessions will take place, providing a nice background for talks and discussions. Having lunch break at the restaurant located on ground floor will be an excellent opportunity for those who prefer to stay in the conference building.



Level 0



Level 1



Level 2



# SOCIAL EVENTS

## ICEBREAKER PARTY

(Tuesday, April 23<sup>th</sup>, 17:00-21:00; address: ul. Jagiellońska 15)

On Tuesday, after the workshops, we would like to invite you to the Icebreaker Party which will be held in Collegium Maius, the oldest university building in Kraków, built in 14th and rebuilt in the following century. It is located at the corner of ulica Jagiellońska (Jagiellon Street) and ulica Świętej Anny (St. Anne Street) just a minute walk from the Main Square. Today Collegium Maius serves as a museum of our university and we have prepared a free guided tour for those who would wish to experience the life of a student from Nicolaus Copernicus times.

The party will be set on its arcade courtyard and also in the scenic garden.



The access to the event is possible only with yellow dot on the badge.



## CONFERENCE DINNER AT THE MANGGHA MUSEUM

(Thursday, April 25<sup>th</sup>, 20:00-23:00 ; address: ul. Marii Konopnickiej 26)

On Thursday, we will have a reception at the Manggha Museum of Japanese Art and Technology or in short, the Manggha. Created on the initiative of Polish film director Andrzej Wajda and opened in 1994 as the Manggha Centre of Japanese Art and Technology. The Museum collection consist of artwork donated by the writer and collector of art, Feliks Jasiński to the National Museum in Krakow in 1920. It houses a collection of Far Eastern Art in addition to serving as a host for various cultural events. Manggha is located near the Vistula River, opposite Wawel Castle, which creates a unique and scenic view. The impressive form of the building, reminding the river's meander, was created by the famous Japanese architect Arata Isozaki, in collaboration with Krakow architects. The reception will combine a dinner with a plethora of dishes served buffet-style with a party, with dancefloor and DJ.

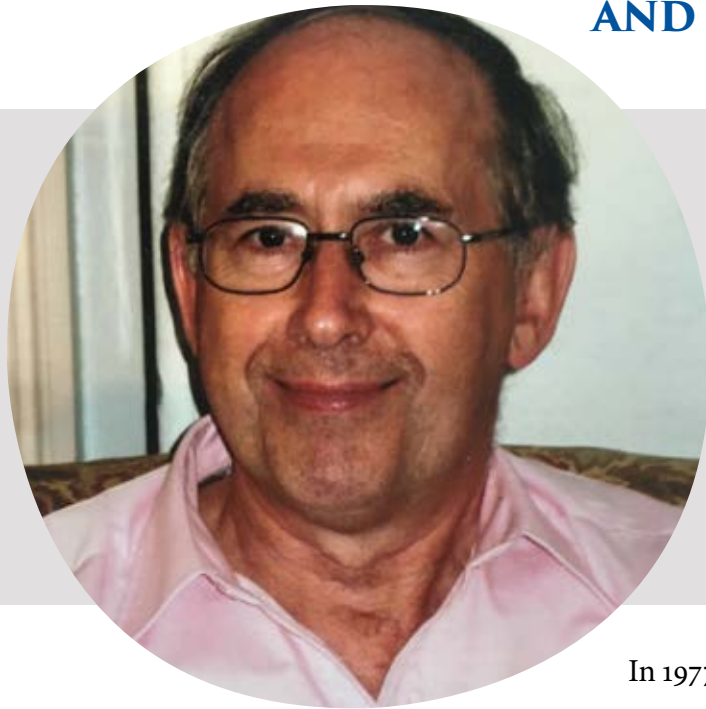


The access to the event is possible only with blue dot on the badge.



# KEYNOTE

## REFLECTIONS ON METHOD AND THEORY AT THE INTERFACE BETWEEN ARCHAEOLOGY AND COMPUTER APPLICATIONS



JOHN  
BINTLIFF

In 1977 I took up my first lectureship, in Archaeological Sciences at Bradford University, when the university was encouraging staff to buy their first desktop computer. Since then digital archaeology has been a constant companion in my fieldwork and library research, and although I am not a computer archaeologist, I have always worked closely with those who are. This presentation will focus on the unavoidable, usually fruitful, but often difficult relationship between the approaches favoured by the digital community and the realities of archaeological data and interpretation. The examples given stem from my own experiences from the 1970s to the presentday, and include Sampling strategies, Landscape GIS, Ceramic Study, Big Data, Network Analysis and Virtual Reality.



# SCHEDULE

TUESDAY

08.00 - 16.00 › **REGISTRATION**  
10.00 - 16.00 › **WORKSHOPS**  
17.00 - 21.00 › **ICEBREAKER PARTY**

WEDNESDAY

07.30 - 17.00 › **REGISTRATION**  
09.00 - 10.00 › **WELCOME ADRESSES & KEYNOTE**  
10.20 - 18.20 › **SESSIONS**

THURSDAY

07.30 - 17.00 › **REGISTRATION**  
08.40 - 15.00 › **SESSIONS**  
15.00 - 16.00 › **POSTER SESSION**  
16.00 - 18.00 › **ANNUAL GENERAL MEETING**  
20.00 - 23.00 › **CONFERENCE DINNER**

FRIDAY

07.30 - 17.00 › **REGISTRATION**  
08.40 - 18.40 › **SESSIONS**

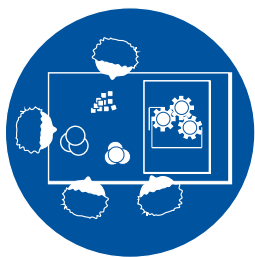
SATURDAY

09.50 - 18.00 › **EXCURSIONS**

# TUESDAY, 23 APRIL 2019

## WORKSHOPS

(Collegium Minus & Collegium Witkowski, 10:00-16:00)



Conference Workshops will be organised by the Faculty of History of Jagiellonian University. They will take place in two adjacent buildings Collegium Minus (ul. Gołębia 11) and Collegium Witkowskiego (Gołębia 13). These buildings are located in the old city centre in the heart of our university.

**The Collegium Minus** is one of the oldest buildings of the university, standing next to the Collegium Maius. This building is a burgher house, bought by the university in 1449. Fragments of the former building have survived in the cellars – the Gothic Lecture Hall until today. Today, it houses the Institute of Archaeology.

**The Collegium Witkowski** was erected in 1908-11. The building is a combination of Gothic-revival, Romanesque-revival and Art Nouveau styles. It was named after August Witkowski - a physicist who worked on physical properties and laws concerning gases especially in low temperatures. In 1910-1911 he was a rector of the university. Originally the building used by the physics department, it now serves the Institute of History.

*Philip Verhagen, Steve Stead*

### **WORKSHOP 1: IMPROVING PRESENTATION SKILLS**

*Gisli Palsson*

### **WORKSHOP 2: FROM SHAPES TO SEQUELS: THE VALUE OF INTEGRATING POSTGIS WITH QGIS**

*Tomasz Łojewski*

### **WORKSHOP 3: REFLECTANCE TRANSFORMATION IMAGING**

*Clemens Schmid, Martin Hinz, Carolin Tietze*

### **WORKSHOP 4: CAA SCRIPTING LANGUAGES HACKATHON I – CAN YOU CODE THIS?**

# WORKSHOPS

*Gabriele Gattiglia, Michael Remmy, Holly Wright*

**WORKSHOP 5:** ARCHAIDE. A NEURAL NETWORK FOR AUTOMATED RECOGNITION OF ARCHAEOLOGICAL POTTERY

*Eleonora Gandolfi*

**WORKSHOP 6:** ~~THE BLOCKCHAIN: MEET THIS “UNKNOWN FRIEND”~~

*Stefani Crabtree, Enrico Crema, Iza Romanowska, Colin Wren*

**WORKSHOP 7:** AGENT-BASED MODELLING FOR ARCHAEOLOGISTS

*Angus Mol, Aris Politopoulos*

**WORKSHOP 8:** INTERACTIVE HISTORYTELLING WITH TWINE

*Serdar Aydin, Zeynep Özge Özdemir*

**WORKSHOP 9:** KILL THE MUSEUM BY DESIGN: A DESIGN APPROACH FOR CREATION AND SHARING OF INFORMATION AND NARRATIVES

*Karin Lund*

**WORKSHOP 10:** INTRASIS WORKSHOP

## ICEBREAKER PARTY

(Collegium Maius, 17:00-21:00; address: Jagiellońska 15)



# WEDNESDAY, 24 APRIL 2019

Medium A

Medium B

Exhibition A

09:00 - 10:00

## WELCOME ADDRESSES AND KEYNOTE

*Large Hall*

10:00 - 10:20

## COFFEE BREAK

10:20 - 12:40

S02: Progress in WebGIS  
and DB solutions  
for Archaeology

*Matsumoto,  
Uleberg, Hochschild,  
Märker, Willmes*

S22: Digital  
Infrastructures for  
Archaeology: Past,  
Present and  
Future directions

*Richards, Wright,  
Niccolucci*

S27: Chasing heritage  
thieves: digital methods  
and approaches to  
contrasting trafficking  
and looting of  
cultural property

*Traviglia & Giovanelli*

12:40 - 14:00

## LUNCH BREAK

14:00 - 15:40

S02: Progress in WebGIS  
and DB solutions  
for Archaeology

*Matsumoto,  
Uleberg, Hochschild,  
Märker, Willmes*

S22: Digital  
Infrastructures for  
Archaeology: Past,  
Present and  
Future directions

*Richards, Wright,  
Niccolucci*

S24: New methods for  
stratigraphic modeling

*Andreaki & Barceló*

15:40 - 16:00

## COFFEE BREAK

16:00 - 18:20

O29: Our little minions,  
part 2: small tools  
with major impact

*Visser, Thiery, Mennenga*

S22: Digital Infrastruc-  
tures for Archaeology:  
Past, Present and  
Future directions

*Richards, Wright,  
Niccolucci*

S24: New methods for  
stratigraphic modeling

*Andreaki & Barceló*

# SESSIONS

Exhibition B

Large Hall A

Seminar

Small Hall

## WELCOME ADDRESSES AND KEYNOTE

*Large Hall*

### COFFEE BREAK

S05: R as an archaeological tool: current state and directions (vol. II)

*Tietze, Schmidt, Grunert*

S26: Archaeological network research: formal network representation of archaeological theories

*Gheorghiadu & Brughmans*

S28: Computational classification in archaeology

*Nakoinz & Hinz*

S41: From Micro to Macro: computer-based approaches for the analysis of big data in the study of artefacts and societies

*Lorenzon & Kaliszewska*

### LUNCH BREAK

S14: Modelling Data Quality in archaeological Linked Open Data

*Bruhn, Mees, Thiery*

S26: Archaeological network research: formal network representation of archaeological theories

*Gheorghiadu & Brughmans*

S28: Computational classification in archaeology

*Nakoinz & Hinz*

S01: Student and Early-Career researcher session

*Miles*

### COFFEE BREAK

S46: Spatial Analysis of 3D Archaeological Information: Method and Theory

*Nobles & Raether*

S31: In pursuit of social space. Detecting activity areas in Palaeolithic contexts

*Moreau, Spagnolo, Morera, Wiśniewski, Nieto-Márquez*

R03: Roundtable Scientific Scripting Languages in Archaeology - Limits and Opportunities of Open Research

*Hinz, Schmid, Schmidt*

S01: Student and Early-Career researcher session

*Miles*

# THURSDAY, 25 APRIL 2019

Medium A

Medium B

Exhibition A

08:40 - 10:40

R39: The European Research Council (ERC): funding excellent research in the field of Archaeological Science

*Priki*

O23: Taking your GIS onto the field. 'How'-s and 'Why'-s of future survey

*Buławka, Campana, Chyla*

R36: User Experience Design in Archaeology and Cultural Heritage

*Dolcetti, Perry, Opitz*

10:40 - 11:00

**COFFEE BREAK**

11:00 - 12:40

S42: New technologies in woodland archaeology: problems and limitations

*Niedziółka, Konczewski, Jakubczak*

O23: Taking your GIS onto the field. 'How'-s and 'Why'-s of future survey

*Buławka, Campana, Chyla*

R36: User Experience Design in Archaeology and Cultural Heritage

*Dolcetti, Perry, Opitz*

**LUNCH BREAK**

14:00 - 15:00

O23: Taking your GIS onto the field. 'How'-s and 'Why'-s of future survey

*Buławka, Campana, Chyla*

15:00 - 16:00

**POSTER SESSION & COFFEE**

*Level 0 - next to Main Entrance*

16:00 - 18:00

**ANNUAL GENERAL MEETING (AGM)**

*Large Hall*



# SESSIONS

Exhibition B	Large Hall A	Seminar	Small Hall
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<p>Ro8: Teaching Digital Archaeology</p> <p><i>Sonnemann, Kiarszys, Traviglia</i></p>	<p>S34: Archaeological Data for Modern Problems. Modern Methods for Archaeological Questions</p> <p><i>Crabtree &amp; Romanowska</i></p>	<p>O20: Recent Developments in Digital Numismatics – Breaking down barriers</p> <p><i>Gruber, Tolle, Wigg-Wolf</i></p>	<p>So1: Student and Early-Career researcher session</p> <p><i>Miles</i></p>
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## COFFEE BREAK

<p>Ro8: Teaching Digital Archaeology</p> <p><i>Sonnemann, Kiarszys, Traviglia</i></p>	<p>S34: Archaeological Data for Modern Problems. Modern Methods for Archaeological Questions</p> <p><i>Crabtree &amp; Romanowska</i></p>	<p>So1: Student and Early-Career researcher session</p> <p><i>Miles</i></p>
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## LUNCH BREAK

<p>Ro9: Thinking out of the classroom: sharing knowledge and resources...</p> <p><i>Verhagen, Lang, Kondo, Stead</i></p>	<p>S34: Archaeological Data for Modern Problems. Modern Methods for Archaeological Questions</p> <p><i>Crabtree &amp; Romanowska</i></p>	<p>O35: Extreme Data Processing in Archaeology</p> <p><i>Cuy, Ducke, Foertsch, Block-Berlitz</i></p>	<p>So1: Student and Early-Career researcher session</p> <p><i>Miles</i></p>
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## POSTER SESSION & COFFEE

*Level 0 - next to Main Entrance*

## ANNUAL GENERAL MEETING (AGM)

*Large Hall*

# FRIDAY, 26 APRIL 2019

	Medium A	Medium B	Exhibition A
08:40 - 10:40	<p>S33: Digital Landscapes in Archaeology: From field recording to the reconstruction of human use of space</p> <p><i>Herrera Malatesta, Hinojosa-Balino, Hernández Cordero</i></p>	<p>S13: Ethics in Digital Archaeology: Concerns, Implementations, and Successes</p> <p><i>Dennis</i></p>	<p>S21: Challenges and opportunities of machine learning in archaeological research</p> <p><i>Brandsen, Kramer, Verschoof-van der Vaart</i></p>
10:40 - 11:00	<b>COFFEE BREAK</b>		
11:00 - 12:40	<p>S33: Digital Landscapes in Archaeology: From field recording to the reconstruction of human use of space</p> <p><i>Herrera Malatesta, Hinojosa-Balino, Hernández Cordero</i></p>	<p>So4: Digital archaeology of modern conflict landscapes</p> <p><i>Kiarszys &amp; Kostyrko</i></p>	<p>S21: Challenges and opportunities of machine learning in archaeological research</p> <p><i>Brandsen, Kramer, Verschoof-van der Vaart</i></p>
12:40 - 14:00	<b>LUNCH BREAK</b>		
14:00 - 15:40	<p>S18: Immersive Digital Media in Archaeology: Memory, Place and Performance</p> <p><i>Beale, Richards, Smith</i></p>	<p>So4: Digital archaeology of modern conflict landscapes</p> <p><i>Kiarszys &amp; Kostyrko</i></p>	<p>S11: Pre-modern cities and complexity</p> <p><i>Paliou, Artopoulos, Romanowska, Crawford, Kalayci</i></p>
15:40 - 16:00	<b>COFFEE BREAK</b>		
16:00 - 18:40	<p>S18: Immersive Digital Media in Archaeology: Memory, Place and Performance</p> <p><i>Beale, Richards, Smith</i></p>	<p>S25: "Real-time" archaeological data. Hyperreality, temporality and materiality of digital archaeological objects</p> <p><i>Stobiecka</i></p>	<p>S11: Pre-modern cities and complexity</p> <p><i>Paliou, Artopoulos, Romanowska, Crawford, Kalayci</i></p>

## SESSIONS

## Exhibition B

## Large Hall A

## Seminar

## Small Hall

S06: Recent advances  
in spatial statistics  
for archaeology

*Roe & Carrer*

O37: 3D Publishing  
and Sustainability:  
Taking Steps Forward

*Sullivan,  
Richards-Risetto*

S15: Issues of scale  
in archaeological  
computational modelling

*Davies & Wren*

S01: Student and  
Early-Career  
researcher session

*Miles*

## COFFEE BREAK

S06: Recent advances  
in spatial statistics  
for archaeology

*Roe & Carrer*

S17: Empowering  
Archaeology of the  
Senses through  
digital approaches

*Landeschi,  
Richards-Risetto*

S32: Multiscalar and  
Multivariate Approaches  
to Digital Documentation  
of Archaeological Sites

*Ippolito & Rissolo*

S01: Student and  
Early-Career  
researcher session

*Miles*

## LUNCH BREAK

S45: Virtual Reality  
and 3D modeling:  
Where are we now?

*Zarmakoupi*

S17: Empowering  
Archaeology of the  
Senses through  
digital approaches

*Landeschi,  
Richards-Risetto*

O07: Teaching 2.0: Show  
me how you teach!

*Tietze & Hageneuer*

S44: Analysing Shape in  
the Digital Age: Current  
Considerations in  
Archaeological  
Application of Geometric  
Morphometrics

*Hoggard, Stark,  
Roth, Janin*

## COFFEE BREAK

R19: Our knowledge  
is all over the place!

*Reilly, Stead, Pouncett*

S40: Argumentation  
and the Archaeological  
Record

*Gonzalez-Perez,  
Martin-Rodilla,  
Pereira-Fariña*

O07: Teaching 2.0: Show  
me how you teach!

*Tietze & Hageneuer*

R16: Where does global  
meet local? Finding com-  
mon ground for multisca-  
lar analysis of settlement  
and land use dynamics

*Verhagen & Nuninger*

# SATURDAY, 27 APRIL 2018

## TOUR 1: WIELICZKA SALT MINE TOUR



The remarkable and breathtaking site the Wieliczka salt mine has been listed on the UNESCO World Heritage List since 1978. The unique “underground town” consists of 300 kilometers of tunnels, shafts, chambers, chapels and lakes. Nine levels of mine’s development reaches 327 meters under the surface.

By visiting the mine you can be among the famous visitors such as Nicolaus Copernicus, Johann Wolfgang von Goethe, Alexander von Humboldt and John Paul II who visited the mine and discovered this amazing place. During the tour you will have a chance to learn about history and the development of salt-mining from prehistoric times. English speaking guide will present the local legends and miners’ daily life. You will explore the underground lakes, chapels and the monumental St. Kinga’s Chapel. The Wieliczka Salt Mine is a must-see place in Poland.

Meeting /Drop off point: Auditorium Maximum, ul. Krupnicza 33

Pick up time: Saturday 27th April 2019 9:50 am

Duration: ca. 4 hours

During the tour you will be assisted by English speaking tour leader. The Salt Mine tour will be carried out by an experienced guide. At the entrance you will be given headsets and receivers since the guide will use the voice transmitter.

### **Salt Mine regulations:**

Please keep in mind that you will have to climb 380 steps down.

The photo fee: 10 PLN.

The temperature in the mine is constant (about 14°C/58°F ) please take warm clothes

# EXCURSIONS

## TOUR 2: THE MEMORIAL AND MUSEUM AUSCHWITZ-BIRKENAU TOUR

KL Auschwitz is the largest former German Nazi concentration and extermination camp. Over 1.1 million women, men and children lost their lives there. Auschwitz-Birkenau has been a symbol of Holocaust since it became the deadliest extermination centre of European Jews. The victims were transported from all over of the Nazi occupied Europe. The complex has been preserved as a memorial museum and has remained as a living monument of genocide and as a warning for next generations, according to quote by George Santayama: "Those who cannot remember the past are condemned to repeat it."



The visit is divided into two parts. Firstly you will pass the gate with the infamous inscription above your heads: Arbeit Macht Frei in Auschwitz I: the concentration camp. You will learn about the everyday life of prisoners. You will see the multitude of confiscated belongings of the Nazi victims. In the extermination camp of Auschwitz II: Birkenau you will experience the horror of the Jews unconsciously led to death.

Meeting /Drop off point: Auditorium Maximum, ul. Krupnicza 33

Pick up Time: Saturday, 27<sup>th</sup> April 2019 9:50 am

Duration: ca. 8 hours

During the tour you will be assisted by English speaking Tour Leader. The tour will be carried out by a museum guide. At the entrance you will be given the headsets and receivers since the guide will use the voice transmitter. The tour is divided into two parts. In Auschwitz I (Concentration Camp) the tour takes around 2 hours, then the short break is provided. Next you will move to Auschwitz II Birkenau (Concentration and Extermination Camp) by a bus (5 minutes ride) where the visit lasts usually about 1 hour.

### Museum Regulations:

At the entrance of the Museum there is a security control (similar to those at airports). You will be asked to empty your pockets and put every metal object onto a basket.

The weapons (knives, scissors), alcoholic beverages, food are not allowed in the museum. Smoking is allowed only in designated areas. Taking photos is allowed (without flash inside buildings).

**IMPORTANT:** You can carry inside only a small bag.

The allowed dimensions: 30×20×10 (A4 format)

# SESSIONS

CAA 2019

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## Standard session 31:

### In pursuit of social space. Detecting activity areas in Palaeolithic contexts

*Gwénaëlle Moreau, University of Liège (Belgium)*

*Vincenzo Spagnolo, Università degli Studi di Siena (Italy) - Dipartimento di Scienze Fisiche, della Terra e dell'Ambiente - U.R. Preistoria e Antropologia*

*Nuria Morera Noguera, Universitat Autònoma de Barcelona (UAB)*

*Andrzej Wiśniewski, Institute of Archaeology, University of Wrocław,*

*Irene Ortiz Nieto-Márquez, Universidad Complutense de Madrid*

*Large Hall A, 16.00 – 18.00, 24 April 2019*

The label “Palaeolithic site” encompasses a wide range of settlement organizational patterns, which are related to the mobility and economic strategies adopted by hunter-gatherer groups. The evidence of space management by hunter-gatherers constitutes a precious tool for the reconstruction of Palaeolithic settlement dynamics.

Usually, the only structuration elements of space that we can still see are zones with gradient densities of lithics and faunal remains. The introduction of GIS in Archaeology significantly increased our ability of detecting the structured components of space, reducing the subjectivity of the visual approaches, thanks to the parameterizing of data and application of the geostatistical methods.

In the intra-site scale of Palaeolithic sites, the Minimum Spatial Units represent the Activity Areas and their relations with possible features and structures in the site (both evident and latent). Detecting these Spatial Units requires a complex analytical protocol, including a taphonomic premise, as well as the palimpsest dissection (aimed to achieve a high-temporal-resolution) and the elimination of background noise (aimed to obtain a more refined reading of the evidence). In this regard, GIS is confirmed as the best analytical tool, due to its integrated structure and its scientific background in the field of spatial studies. Despite a wide variety of choices, in terms of analytical methods (e.g. KDE, Spatial autocorrelation, K-means, ...), we are still far from a common study protocol which can produce effectively comparable results from different sites. However, our analytical methods must be flexible and context-specific, and adapt to differences in preservation, variability and temporal meaning of Palaeolithic sites (e.g. palimpsest-effect, functionalities of sites, ...).

In this session, we would like to discuss activity area identification and interpretation processes. Our goal is to set up the basis required for the development of a common model of spatial-functional analysis within Palaeolithic contexts. We warmly invite papers in which integrated and multidisciplinary approaches are applied to gaining new meaningful data on Palaeolithic behaviour. Applications in different contexts, such as open-air, rock-shelter and



cave sites, living floors, short-term or long-term palimpsests, will be welcome. The results must encourage a better integration and comparability of spatial studies in Palaeolithic research.

16.00 – 16.20

A spatial analysis protocol to detect human's activity areas of Middle Palaeolithic open air sites from Northern France,  
*Gwénaëlle Moreau, Jean-Luc Locht*

16.20 – 16.40

Hidden data. The spatial analysis process, from data definition to functional areas identification. Examples from some Italian Middle Palaeolithic sites,  
*Vincenzo Spagnolo*

16.40 – 17.00

GIS spatial analysis of the Middle Palaeolithic site from SW Poland. Integrated approach,  
*Andrzej Wiśniewski, Marcin Chłoń*

17.00 – 17.20

The Gravettian Levels from Arbreda Cave: Understanding the Formation of Residential Contexts of Pre-Late Glacial Maximum Hunter-Gatherers,  
*Isaac Rufí, Núria Morera, Joaquim Soler, Lluís Lloveras, Narcís Soler*

17.20 – 17.40

Palaeo-GIS of chocolate flint mining area in Orońsko, Southern Poland,  
*Katarzyna Marta Kerneder-Gubała, Nazar Buławka, Sylwia Buławka*

17.40 – 18.00

Geomorphometry in Palaeo-GIS applications: What landform analyses can contribute to the study of Palaeolithic landscapes,  
*Felix Henselowsky, Patrick Cuthbertson*

TUESDAY

08.00 - 16.00 › **REGISTRATION**  
10.00 - 16.00 › **WORKSHOPS**  
17.00 - 21.00 › **ICEBREAKER PARTY**

WEDNESDAY

07.30 - 17.00 › **REGISTRATION**  
09.00 - 10.00 › **WELCOME ADRESSES & KEYNOTE**  
10.20 - 18.20 › **SESSIONS**

THURSDAY

07.30 - 17.00 › **REGISTRATION**  
08.40 - 15.00 › **SESSIONS**  
15.00 - 16.00 › **POSTER SESSION**  
16.00 - 18.00 › **ANNUAL GENERAL MEETING**  
20.00 - 23.00 › **CONFERENCE DINNER**

FRIDAY

07.30 - 17.00 › **REGISTRATION**  
08.40 - 18.40 › **SESSIONS**

SATURDAY

09.50 - 18.00 › **EXCURSIONS**



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