

## REGISTER

<http://junge-kurie.oeaw.ac.at>



## DATE & TIME

10 April 2014

14.00-19.30

## VENUE

Austrian Academy of Sciences/  
Österreichische Akademie der Wissenschaften (ÖAW)  
Theatersaal  
Sonnenfelsgasse 19  
1010 Wien

## HOW TO GET THERE

U3 Stubentor

U4 Schwedenplatz

# When the Past meets the Future

WORKSHOP ON DIGITAL AND VIRTUAL ARCHAEOLOGY  
**10 APRIL 2014**, AUSTRIAN ACADEMY OF SCIENCES, VIENNA

ORGANISATION: JUNGE KURIE AND INSTITUTE  
FOR THE STUDY OF ANCIENT CULTURE (ÖAW)

## ORGANISATION

Mag. Dr. Norbert Zimmermann  
Institute for the Study of Ancient Culture (ÖAW)  
Junge Kurie (ÖAW)

## CONTACT/INFORMATION

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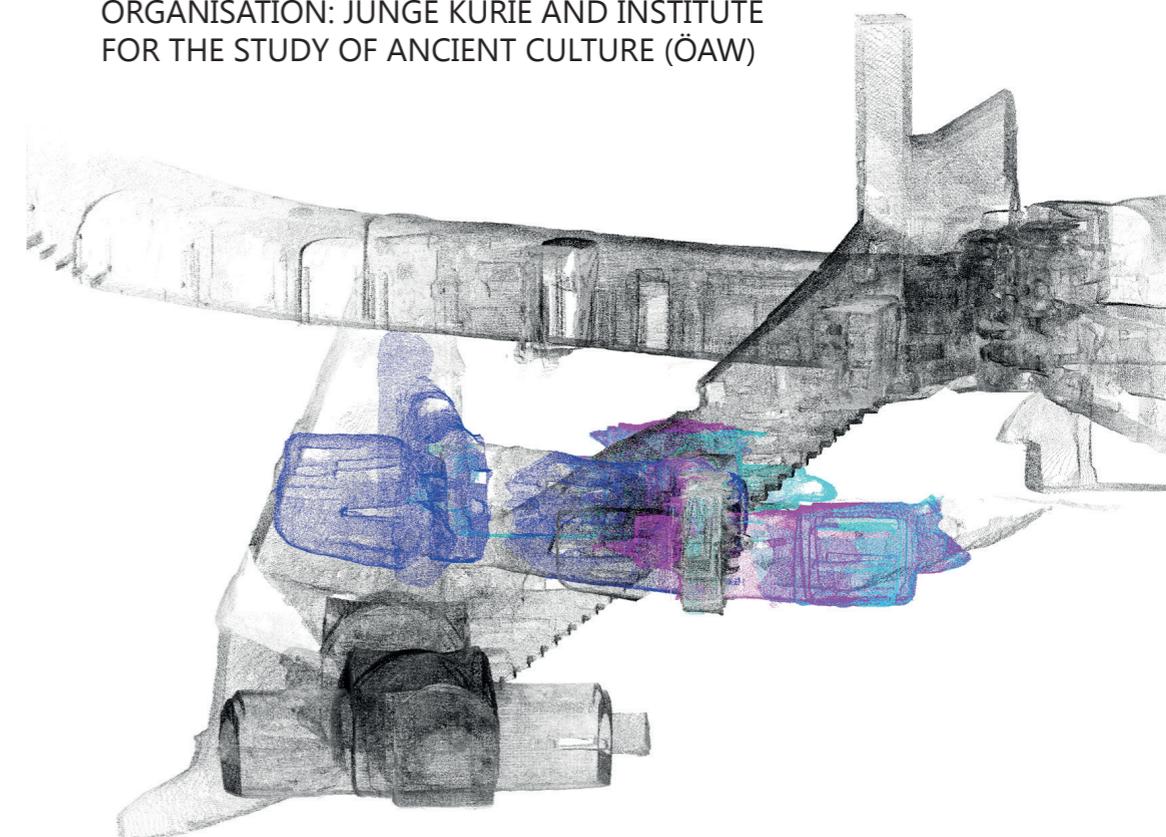
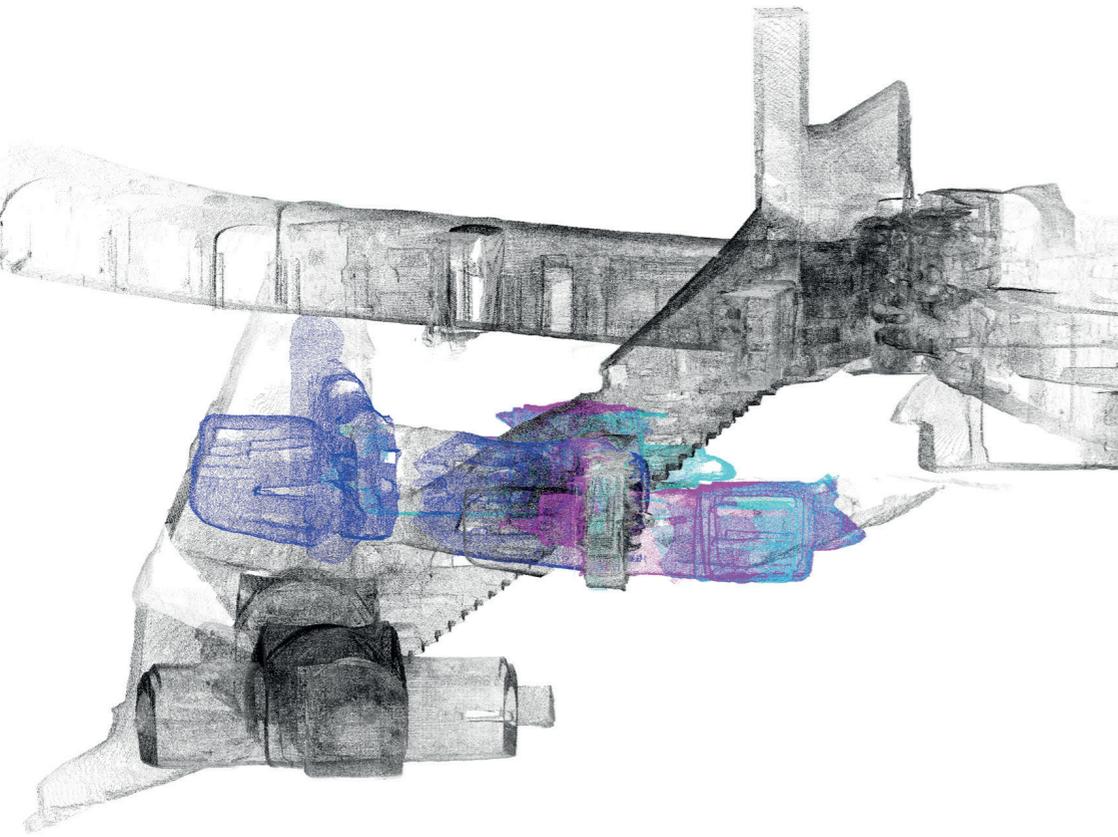
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Photo Credits:

Speakers, if not stated otherwise.

Picture Herculaneum Conservation Project: Akhet/Herculaneum Conservation Project

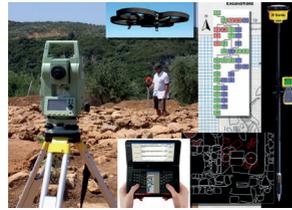
Background picture: Domitilla-Project Austrian Academy of Sciences/Vienna University of Technology



## PROGRAM

14.00 Welcome – Norbert Zimmermann (Austrian Academy of Sciences, Vienna)

14.05 Chris Mundigler (InCA Research Services, Victoria, Canada)



### Taking Archaeology Digital

This highly-visual presentation will introduce the workshop audience to the many and varied aspects of new technologies in archaeology (both real and virtual) including hardware possibilities (from computers and tablets in the field to survey and photographic equipment); the amazing variety of publically-available and specialized software (both commercial and especially free-of-charge); Cloud applications in GIS, CAD, databasing and imaging for archaeological fieldwork, as well as studio and archival purposes; and much more.

14.45 Massimo Limoncelli (Università Cattolica del Sacro Cuore, Milan, Italy)



### Virtual Hierapolis Project

In the field of the the Italian Archaeological Mission activities in Hierapolis of Frigia an ambitious work, named "Virtual Hierapolis", has been developed relating to the restitution of the city in the hellenistic-roman and byzantine period. The aim of the project is virtual restore and 3D reconstruction of monumental complexes which have been studied by several research teams. The "Virtual Hierapolis" was born in 2010 and is managed by the writer at the Laboratory of Computer Science applied to Archaeology of University of Salento; it avails of collaborations between archaeologists, architects and restorers who work in the several research teams contributing to the Project.

15.30 Norbert Zimmermann (Austrian Academy of Sciences, Vienna)



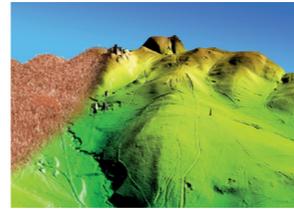
### Virtual Archaeology in the Roman catacombs

The Roman catacombs are fascinating monuments of the early Christian community, with hundreds of thousands of graves of their members, ornamented with paintings and inscriptions. Domitilla, the biggest catacomb with the highest number of paintings, could not be studied in its entity due to its enormous subterranean extension. An Austrian START-Project offered the opportunity to apply for the first time 3D-laserscan techniques for a digital 3D documentation of the entire catacomb and the creation of photorealistic models of the painted rooms.

The talk will present the results of both the archaeological field work as well as the study of the virtual monument. The point-cloud viewer Scanopy allows the animation of all real data inviting to a virtual visit.

16.15–16.30 Coffee break

16.30 Michael Doneus (University of Vienna)



### Airborne Laser Scanning for Archaeology: Potential, Limitations and Latest Developments

Almost one and a half decades after its first mention in archaeology, Airborne Laser Scanning (ALS) has turned out to be an extremely useful prospection technique not only for forested areas. Its potential to measure dense, precise and accurate digital surface (DSM) and digital terrain models (DTM), is of relevance for a wide range of archaeological applications, as could be demonstrated within recent publications. Today we can state that regardless of whether ALS is used in open fields, meadows or forested and otherwise densely vegetated areas it has potential to serve three main aspects of cultural heritage protection: detection, documentation, and monitoring of sites, monuments and landscapes. The process chain from data acquisition to the visualisation for the final interpretation is however being constantly re-developed and enhanced.

The presentation will give an overview of the state of the art and will specifically deal with latest developments, as Airborne Laser Bathymetry, multi-wavelength scanning and radiometric aspects of ALS data.

17.15 John Clarke (University of Texas at Austin, USA)



### Archaeological Publication in the Digital Age: Born-Digital Publication, 3D Navigation, Virtual Reconstruction, and Linked Databases

From its inception in 2006, the Oplontis Project set the goal of marrying traditional archaeological practices to cutting-edge instruments for recording and dissemination. These instruments include born-digital publication and a fully navigable 3-D model, both linked to the Project database. In partnership with the American Council of Learned Societies, the Oplontis Project is producing the definitive publication of the archaeological site of Villa A ("of Poppaea") at Torre Annunziata, Italy. The advantages of the e-book far outweigh those of paper publication. There are no limitations on either the quantity or quality of text and visual media. The fully navigable interface uses an advanced, "first-person shooter" gaming engine that allows unprecedented access to scholarly information and virtual experience of the site. Not only does the model document the actual state of Villa A, but it permits the user to query any feature within the site.

In this presentation, model and database shall be demonstrated, and the e-book *Oplontis Villa A ("of Poppaea") at Torre Annunziata, Italy. Volume 1. The Ancient Setting and Modern Rediscovery.* will be introduced.

18.00–18.30 Break

## EVENING LECTURE

18.30 Andrew Wallace-Hadrill (University of Cambridge)  
Ascanio D'Andrea (Herculaneum Conservation Project)



### The Herculaneum Conservation Project: Old Problems and new Technologies

Since 2001 the Packard Humanities Institute has supported a project at the Roman site of Herculaneum, in close collaboration with the Soprintendenza Archeologica (SANP), to address some of the numerous conservation problems that afflict this site in common with Pompeii. The project has from the start been committed to use experiment and innovation to develop low-cost and sustainable approaches informed by the best available technologies. In this paper, Wallace-Hadrill as Scientific Director of the HCP will explain the broad context of the challenges, and D'Andrea, as the colleague responsible for IT aspects of the project, will explain the use of new technologies in support of scientific research and as an operational tool for specialists engaged in the design of conservation activities. Three case studies will be presented in detail: the 3D GIS of Insula Orientalis I, an urban complex of three residential units in the south-east area of the ancient city; the laser-scanner survey of the Suburban Baths, the thermal baths perhaps best preserved in the Vesuvian area and beyond; and finally the 3D graphical documentation activities and 3D virtual reconstructive hypotheses of the wooden elements of a roof and ceiling found in 2010 in the ancient shoreline of Herculaneum.

19.30 Reception

