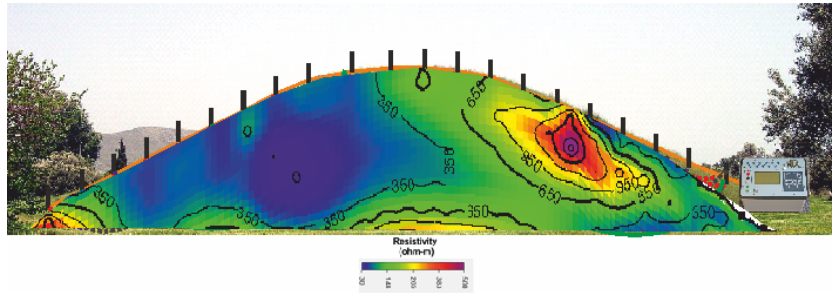
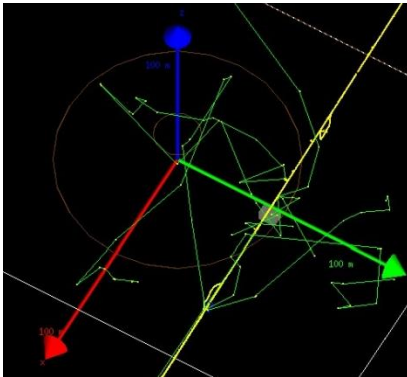


SYMPOSIUM
**EKATY: Innovative imaging of the subsurface of
archaeological sites and the interior of structural elements of
monuments in 3 and 4 Dimensions**



Thessaloniki, October 25-27, 2023

CONFERENCE LINK:

<https://authgr.zoom.us/j/92749143532?pwd=cFYrZ1dmUnJUbe1abGU4Ymp2Y25wQT09>

Meeting ID: 927 4914 3532

Password: 919913

Venue: Aristotle University Research Dissemination Centre, known as KEDEA Building (the Red Building). 3rd Septemvriou str.



Organizers:

Aristotle University of Thessaloniki (AUTH)

Exploration Geophysics Lab.

Lab of Atomic and Nuclear Physics

**Laboratoire d' Annecy de Physique des Particules (LAPP
CNRS-IN2P3)**

Institut de Physique Nucleaire de Lyon

**Hellenic Ministry of Culture and Sports (Ephorates of
Antiquities of Thessaloniki City, Thessaloniki Region, Kavala,
Drama, Rhodope and Evros)**

CONFERENCE PROGRAM

Wednesday, October 25, 2023

8:30–09:00 Conference registration

09:00-09:15 Welcome address Opening Remarks: Prof. G.N. Tsokas (AUTH), Prof. D. Sampsonidis (AUTH), Dr. Yannis Karyotakis (LAPP CNRS-IN2P3), Chairman of the School of Geology.

09:15-09:45 Innovations in imaging of the subsurface of archaeological sites and the interior of structural elements of monuments in 3 and 4 Dimensions developed in the framework of the EKATY project
Grigorios N. Tsokas

10:00-10:50 **Session 1, GEOPHYSICAL IMAGE FUSION**
Chairman: Dr. G. Didaskalou (General Secretary of the Ministry of Culture and Sports)

10:00-10:20 **The image fusion methods developed for EKATY**
Alexandra Karamitrou and Grigorios Tsokas

10:30-10:50 **SMART EYE - Development of a prototype for smart visualization of invisible antiquities.**
Dimitris Kaimaris, Petros Patias, Themistoklis Roustanis, Stelios Andreou, Maria Pappa, Nikos Kouidis.

10:50-11:15 Coffee Break

11:15-12:30 **Session 2, MUON TOMOGRAPHY AND GEOPHYSICAL INVESTIGATIONS OF THE INTERIOR OF TUMULI**

Chairman: Prof. Jacques Marteau (Institut de Physique des 2 Infinis de Lyon)

11:15- 11:35 **Muon Tomography with Micromegas detectors**
Dimitra Amperiadou, K. Kordas, C. Lampoudis, A. Leisos, Ch. Petridou, D. Sampsonidis, C. Tsiafis, A. Tsirigotis, S. Tzamarias

11:35-11:55 **Construction, Test, Commissioning and Deployment at the Apollonia tumulus of the Micromegas Telescope**
Dimitra Amperiadou, K. Kordas, C. Lampoudis, A. Leisos, Ch. Petridou, D. Sampsonidis, C. Tsiafis, A. Tsirigotis, S. Tzamarias

11:55-12:15 **Seismic and Electric tomography experiment at the great tumulus of Apollonia.**
Petros Bogiatzis, George Vargemezis, Tsourlos Panagiotis, Gregory Tsokas, IliasFikos, EftychiaAmanatidou, Nikolaos Kordatos, Prodromos Louvaris and Konstantinos Polydoropoulos

12:15-12:35 Gravity Survey of the great tumulus of Apollonia.

Alexandros Stampolidis, Dimitrios A. Natsiopoulos, George Vergos, Ilias N. Tziavos, and Grigorios N. Tsokas.

12:35-13:00 Coffee Break

13:00-13:40 Session 3, GEOPHYSICAL MONITORING OF MOISTURE CHANGES AND FAILURES EVOLUTION IN THE ELEMENTS OF STANDING MONUMENTS

Chairwoman: Georgia Zacharopoulou (Eforeia of Antiquities for the city of Thessaloniki)

13:00-13:20 3D electrical resistivity tomography (ERT) monitoring in the Thessaloniki Rotunda: looking for moisture changes into the pillar's interior.

Prodormos Louvaris, Panagiotis Tsourlos, George Vargemezis, Konstantinos Polydoropoylos, Elias Fikos, Nectaria Diamanti and Georgia Zacharopoulou

13:20-13:40 Innovative cross-hole and cross-line electrical resistivity tomography (ERT) survey applied to standing monuments: the example of Thessaloniki Thessaloniki Rotunda and Thessaloniki city walls.

Panagiotis Tsourlos, Prodormos Louvaris, Grigorios Tsokas, George Vargemezis, Konstantinos Polydoropoylos, Eleni Tzima and Georgia Zacharopoulou

13:40-14:00 Concluding Remarks

14:00-15:00 Launch Break

15:00-17:30 Session 4, ROUND TABLE: ARCHAEOLOGICAL PROSPECTION AND ARCHAEOLOGY, THE IMPACT OF THE INNOVATIONS INTRODUCED BY EKATY

Thursday, October 26, 2023

Venue: Seismological Station, Aristotle University of Thessaloniki, Prof. Vizoukidi 43 str., 40 Ekklesies, Thessaloniki, 54636



10:00-12:30 Session 5, COMBINING MUON AND GEOPHYSICAL TOMOGRAPHY
Chairman: Prof. Dimitrios Sampsonides (Aristotle University of Thessaloniki)

10:00- 10:20 **Conclusions from the feasibility study of muon tomography application in a non-invasive representation of tumulus**
Ilia Kalaitzidou, Chara Petridou and Dimitrios Sampsonidis

10:20-10:40 **Results on muon tomography application with a test-bench cosmic-ray telescope of micromegas detectors.**
Christos Lampoudis, Chara Petridou and Dimitrios Sampsonides

10:40-11:00 **Testing different 3D Electrical Resistivity Tomography survey modes for tumulus prospection-constraints introduced by other geophysical methods: The optimum protocol for investigating the great tumulus of Apollonia and generalization.**
Panagiotis Tsourlos, Grigorios N.Tsokas, George Vargomezis

11:00-11:20 **Seismic tomography code and the seismic experiment at the great tumulus of Apollonia.**

Petros Bogiatzis, George Vargemezis, Ilias Fikos, Eftychia Amanatidou, Nikolaos Kordatos, Prodromos Louvaris and Konstantinos Polydoropoulos

11:20-12:00 Coffee Break

12:00-12:30 **Gravity Survey of the great tumulus of Apollonia, Inversion of the gravity data and comparison to the density model yielded by muon tomography.**

Alexandros Stampolidis, Dimitrios A. Natsopoulos, George Vergos, Ilias N. Tziavos, and Grigorios N. Tsokas.

12:30-13:00 **Muography of the Apollonia tumulus: Data and simulation comparisons**

I. Karyotakis

13:00-13:30 **Designing combined seismic and electric tomographies for investigating tumuli.**

Petros Bogiatzis

13:30-15:00 Launch Break

15:00-17:30 Session 4, ROUND TABLE: EFFECTIVENESS AND RESOLUTION OF VARIOUS TOMOGRAPHIC METHODS REGARDING THE EXPERIMENT IN APOLLONIA

19:30-22:00 Dinner at a place to be announced at the conference.

Friday, October 27, 2023

09:00 – 17:00 Field excursion to Apollonia.

Visit to the tumulus of the experiments.

Demonstration of the muon detectors (cosmic telescopes).

Visit to the Apollonia baths, coffee break and short introduction to the history and archaeology of the area.

Lunch at Stavros at 14:00 and return to Thessaloniki.