Technical Schedule

16 September

Athens Conservatoire

Aris Garoufalis Auditorium
1st floor

Rigillis St & Vas. Georgiou Avenue B 17-19, 10675 Athens, Greece

ATHENS 2026 TC301

8:15 am – 8:40 am

Registrations

8:40 am – 11:05 am

Opening Addresses — 08:40 am

Award Ceremony — 09:10 am
Honouring the Guardians of Pisa

Keynote Lecture — 09:40 am
Gorun Arun, Yıldız Technical University, Turkey

Keynote Lecture — 10:20 am
Alexander Puzrin, ETH Zurich, Switzerland

COFFEE BREAK — **11:00 am** – 11:30 am

11:30 am – 12:50 pm

Technical Session — 11:30 am
Case Histories in Heritage Preservation

Keynote Lecture — 12:10 pm
Ikuo Towhata, University of Tokyo, Japan

LUNCH BREAK — **12:50 pm** - 1:50 pm

1:50 pm – 3:50 pm

Technical Session — 1:50 pm
Materials, Monitoring & Geotechnical Investigation Methods

COFFEE BREAK — **3:50 pm** – 4:10 pm

4:10 pm – 6:00 pm

Keynote Lecture — 4:10 pm
Guido Gottardi, University of Bologna, Italy

Technical Session — 4:50 pm
Geohazards and Multi-Hazard Risk Assessment for Cultural Heritage

TRANSFER TO RECEPTION — **6:00 pm** – 7:00 pm

7:00 pm – 9:30 pm

National Archaeological Museum: Guided Tour & Reception

08:15-08:40 Registrations

08:40-09:10 Opening Addresses

Christos Tsatsanifos, TC301-Athens Chairman
Alessandro Flora, TC301 Chair
Michalis Bardanis, President HSSMGE
Olga Dourou, Deputy Mayor of Waste Management and Recycling, City of Athens

09:10-09:40 Award Ceremony - Honouring the Guardians of Pisa

Session Chairs: Christos Tsatsanifos, Michalis Bardanis, Alessandro Flora

The Symposium opens with the inaugural Lifetime Achievement Award, presented by the Hellenic Society of Soil Mechanics and Geotechnical Engineering, paying tribute to three legendary geotechnical engineers whose pioneering work secured the future of one of the world's most iconic monuments—the Leaning Tower of Pisa.

09:40-10:20 Keynote Lecture - Gorun Arun

Session Chair: Elena Kapogianni (NTUA)

Yıldız Technical University, Turkey

Substructure design of ancient master builders

In investigating heritage buildings, for proper interpretation of the causes of the failures and for decisions on proper intervention, it is important to consider the engineering knowledge and practice of their construction time. This study is made through reviewing archaeological and history of architecture publications, discussions with archaeologists and experiences met during diagnosis phase of restoration works.

10:20-11:00 Keynote Lecture - Alexander Puzrin

Session Chair: Jamie Standing (Imperial College)

ETH Zurich, Switzerland

The Leaning Tower of St Moritz: a structure on a creeping landslide

The 13th century Leaning Tower of St Moritz, is located in the historic center of the famous Swiss ski resort town in the compression zone of a 10 million m^3 Brattas landslide. Over the hundreds of years, this slowly creeping landslide, which is blocked by a rock outcrop below the tower, had damaged the adjacent St. Mauritius church to such an extent that it had to be demolished already in 1893 due to dangerous differential settlements and cracks. In this lecture, we'll explore the history of the Leaning Tower of St. Moritz, describe its stabilization attempts and pay tribute to some extraordinary minds behind them.

11:00-11:30 COFFEE BREAK

11:30-12:10 Case Histories in Heritage Preservation

Session Chair: Prodromos Psarropoulos (NTUA)

11:30 – 11:40 **Ilaria Bertolini,** Michela Marchi, Guido Gottardi
ID. 33 Archaeological Heritage and subsidence-induced flood risk: the emblematic case of Santa Croce in Ravenna (Italy)

11:40 – 11:50 **Michael Bardanis,** George Dounias
ID. 10 Investigation, analysis and rehabilitation of the failures of St Dimitrios Bastion in the old city of Chania, Crete

11:50 – 12:00 Peng Hong Lim, Jin Jie Loo, **Chin Yoong Lim**
ID. 64 Case Study- Excavation Around Heritage Buildings in an Urban Environment

12:00 – 12:10 **George Dounias,** Evryviadis Lyberis, Vasilis Gikas
ID. 83 The behavior of support measures applied to the Efpalineio tunnel, 10 years later

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12:10-12:50 Keynote Lecture - Ikuo Towhata

Session Chair: Ioannis Anastasopoulos (ETH Zurich)

University of Tokyo, Japan

Different kinds of restoration philosophy for cultural heritages after damage by disasters

Everything deteriorates with time, and cultural heritage is no exception. Natural hazards and human-induced events can cause severe damage, raising difficult questions about how monuments should be restored and preserved.

The lecture reviews different conservation approaches, from strict authenticity to rapid reconstruction, and examines their suitability in different contexts. The discussion ultimately questions the absolute importance of authenticity, suggesting that the enduring value of heritage may depend more fundamentally on the respect it conveys for history.

12:50-13:50 LUNCH BREAK

13:50-15:50 Materials, Monitoring and Geotechnical Investigation Methods

Session Chair: Emmanouel Vassilakis (NKUA)

13:50 – 14:00 Ilaria Bertolini, Michela Marchi, Alessio Mentani, **Guido Gottardi**
ID. 40 Geotechnical modelling for the structural assessment of the Two Towers in Bologna (Italy)

14:00 – 14:10 **Michael Bardanis**
ID. 76 Effect of partial saturation of soil pastes between masonry stones in the tensile strength of the masonry walls

14:10 – 14:20 **Shaohan Wang,** Shuaikang Su, Ji-peng Wang, Jing-yi Shen, Ling Wang, Shangqi Ge
ID. 108 Experimental Investigation of Multi-Material Reinforcement for Han Dynasty Bricks from the Dingtao Tomb

14:20 – 14:30 **Elena Kapogianni,** Georgios Sakellariou, Michael Sakellariou
ID. 37 Big Time-Series Data Analytics in Structural Health Monitoring at the Acropolis of Athens Utilising Optical Fibre Sensors

14:30 – 14:40 **María Aragón-López, Ignacio Ruiz-Moreno**, Cristina Soriano-Cuesta, Francisco M. Hidalgo-Sanchez, Rocío Romero-Hernandez, Antonio Jaramillo, Emilio Mascort-Albea
ID. 95 Geotechnical characterisation for dating rammed earth architecture. The medieval wall of Seville (Spain)

14:40 – 14:50 **Rafail Panagiotou,** Ioannis Ioannou
ID. 85 The importance of soil characteristics on the resistance of Compressed Earth Blocks against water-mediated weathering

14:50 – 15:00 **Michael Bardanis,** Dimitrios Kokoviadis
ID. 101 The light dynamic penetrometer and its use in geotechnical investigation for monuments and historic sites

15:00 – 15:10 **Tomoyoshi Nishimura**
ID. 87 The influence of the suction distribution on deformation property

15:10 – 15:20 **Yutaro Hara**
ID. 88 High-resolution SH wave exploration to assess damage to the Sakuradani Kofun Tumulus No.2 caused by the Noto earthquake

15:20 – 15:30 **Gianfranco Totani,** Ferdinando Totani, Claudia Durante
ID. 25 Investigations by use SDMT seismic modulus to restore two historical buildings damaged by the April 6, 2009 L'Aquila earthquake

15:30 – 15:40 **Prodromos Psarropoulos**
ID. 31 A New Theory for the verification of the location of the ancient city of Helike in Achaia, Greece

15:40 – 15:50 **V.N. Georgiannou,** Ch. Papazoglou, E.M. Pavlopoulou
ID. 112 Drying in Clays: Insights from Within Using X-ray CT

15:50-16:10 COFFEE BREAK

16:10-16:50 Keynote Lecture - Guido Gottardi

Session Chair: Dimitris Egglezos (NTUA)

University of Bologna, Italy

Foundations in Venice: Characteristics and Preservation Challenges in a Unique Environment

The unique, delicate and inherently unstable environment in which Venice was established has, paradoxically, contributed to the city's remarkable resilience and prosperity over the course of more than a millennium. The Venetian experience thus offers valuable insights that remain highly relevant today.

16:50-17:30 Geohazards and Multi-Hazard Risk Assessment for Cultural Heritage

Session Chair: Nikolaos Klimis (DUTH)

16:50 – 17:00
Keith Parfitt, Eddie Bromhead
Presenter: **Jamie Standing**
ID. 14 The Folkestone Warren landslides and the East Cliff Roman Villa

17:00 – 17:10
Chiara Ferrero, Giulio Lucio Sergio Sacco, Chiara Calderini
ID. 39 Numerical damage assessment of a medieval masonry castle under differential settlements

17:10 – 17:20
Dimitrios Boutakidis, Spiridoula Bareka, Georgios Efraimidis, Polyxeni Kallioglou
ID. 21 Landslides Under Flash Floods: Failure Mechanisms and Risk Mitigation Measures

17:20 – 17:30
Janet Botha, C. W. MacMinn, H. J. Burd, S. Acikgoz
ID. 110 Long term prediction of ground movement in expansive clays due to soil-atmosphere-vegetation interaction

18:00-19:00 Transfer to Reception Hall

19:00-21:30 National Archaeological Museum

19:00 – 20:00 **Guided Tour**

20:00 – 21:30 **Conference Reception**

The first day concludes with an exclusive Conference Reception at the National Archaeological Museum of Athens. Delegates will enjoy a private after-hours visit to selected collections, guided by the Museum's Director General, before gathering in the Museum's Atrium to celebrate the opening of the Symposium.

Technical Schedule

17 September

Athens Conservatoire

Aris Garoufalis Auditorium
1st floor

Rigillis St & Vas. Georgiou Avenue B 17-19, 10675 Athens, Greece

ATHENS 2026 TC301

08:45 am – 10:35 am

Keynote Lecture — 08:45 am
Koenraad Van Balen, KU Leuven, Belgium

Technical Session — 09:25 am
Seismic Behaviour of Heritage Monuments: Observation, Modelling and Mitigation

COFFEE BREAK — **10:35 am** – 11:00 am

11:00 am – 12:50 pm

Technical Session — 11:00 am
Restoration Engineering and Structural Interventions

LUNCH BREAK — **12:50 pm** – 1:40 pm

1:40 pm – 4:05 pm

Kerisel Lecture — 1:40 pm
Efrain O. Shelley, UNAM, Mexico

Technical Session — 2:25 pm
Underground Monuments and Rock Engineering

COFFEE BREAK — **4:05 pm** – 4:25 pm

4:25 pm – 6:15 pm

Keynote Lecture — 4:25 pm
Alberto Ledesma, UPC BarcelonaTech, Spain

Technical Session — 5:05 pm - 6:15 pm
Heritage Sites and Urban Development

6:15 pm

TC301 Working Group Meeting
(Members Only)

08:45-09:25 Keynote Lecture - Koenraad Van Balen

Session Chair: George Dounias (EDAFOS)

KU Leuven, Belgium

Dealing with evolving conservation principles to include interdisciplinary collaboration for cultural heritage preservation

A holistic approach for the preservation of cultural heritage often requires the input and collaboration of various disciplines. It therefore requires the various involved actors to understand and agree on the principles that contribute to the preservation of the identified heritage values. Based on my experience with teaching interdisciplinary groups of students to develop a conservation and valorisation project in the Master of science in Conservation of Monuments and Sites at KU Leuven, a methodology and lessons learned can be shared that stimulate and improve interdisciplinary collaboration in the field.

09:25-10:25 Seismic Behaviour of Heritage Monuments: Observation, Modelling and Mitigation

Session Chair: Anargyros Alexandris (Archidoron)

09:25 – 09:35 **Fausto Somma,** Benedetta Cortellesi, Alessandro Pagliaroli, Paolo Tommasi, Giuseppe Lanzo
ID. 20 Numerical analysis of the cliff failure occurred at St. Eutizio Abbey during the 2016 Central Italy seismic sequence

09:35 – 09:45 Filomena de Silva, **Alessandro Flora**, Mariano Nuzzo, Francesco Silvestri
ID. 50 Influence of uncertainties on the stability of rock cavities under gravity and seismic loads

09:45 – 09:55 **Dimitrios Egglezos,** Christos Giannelos
ID. 59 A Multidisciplinary Approach to the Restoration of the Pyli Arch Bridge: Integrating Seismic, Geotechnical, and Hydraulic Analyses

09:55 – 10:05 **Cihan Taylan Akdag,** Frank Rackwitz, Daniel Musall, Thekla Schulz-Brize, Altug Hasözbek
ID. 15 Geotechnical Study on the Hellenistic stone retaining wall of the Upper Agora in Ephesus under static and seismic loading

10:05 – 10:15 Elena Kapogianni, **Prodromos Psarropoulos**, Georgios Sakellariou, Michael Sakellariou
ID. 36 Dynamic Response Assessment of the Acropolis Circuit Wall Using Structural-Health Monitoring, Big-Data Analytics, and Numerical Modelling

10:15 – 10:25 **Evangelia Pelli,** Ioannis Dourakopoulos, Paraskevi Yiouta-Mitra, Anastasios Sextos
ID. 55 Monuments of Greece classified according to seismic behavior and case study for seismic vulnerability index

10:35-11:00 COFFEE BREAK

11:00-12:40 Restoration Engineering and Structural Interventions

Session Chair: Thomas Grammenos (Elliniko Metro)

11:00 – 11:10 **Kari Avellan,** Kirsi Vaali, Erika Belopotocanova
ID. 29 Geotechnical and Structural Engineering for Old Historical Buildings

11:10 – 11:20 **Giuseppe Tropeano,** Giovanna Concu, Donatella Rita Fiorino, Daniel Meloni
ID. 34 Development of methodologies and protocols for the analysis of the geotechnical and structural safety of archaeological monuments from the pre-Nuragic age in Sardinia

11:20 – 11:30 **Eleni-Eva Toumbakari,** Dimitrios Egglezos
ID. 43 Anastylosis of the northeastern tower of the ancient fortress of Aegosthena in Attica: construction analysis, collapse mechanism and interventions for the improvement of the foundation conditions

11:30 – 11:40 **Anargyros Alexandris,** Konstandinos Papandonopoulos
ID. 47 Anastylosis of the Western Stoa of the Gymnasium of Ancient Messene: Engineering Insights into an Archaeological Monument

11:40 – 11:50 Andrea Dominijanni, Matteo Gabassi, Fritz Kopf, Daniel Metz, Alberto Minardi, **Alberto Pasquetto**, Juergen Polansky
ID. 23 Restoring the foundation of a historic Viennese building using injections of expanding polyurethane resins

11:50 – 12:00 Vasiliki Palieraki, **Eleni Tavouktsi**, Eleni Karakike, Constantinos Arvanitis
ID. 63 Vertical connectors between successive drums in ancient columns: literature and in-situ investigation

12:00 – 12:10 **Valter Maria Santoro,** Maria Rita Acetoso, Stefano De Vito
ID. 19 The Reconstruction of the Al Hadba Minaret in the Al Nuri Mosque in Mosul, symbol and outstanding historic heritage of the city

12:10 – 12:20 **Aris Chatzidakis**
ID. 89 Study for the restoration of the walls of the Castle of Kalamata

12:20 – 12:30 **Paolo Simonini,** Francesca Ceccato, Ahmet Sevren
ID. 105 Optimization of Flood Protection Interventions in St. Mark's Square in Venice and evaluation of effectiveness through Geotechnical Investigations and Monitoring

12:30 – 12:40 Dimitrios Egglezos, Christos Tsatsanifos, **Emmanouil Tzannidakis**
ID. 107 Revisiting Ancient Dam Engineering: Stability Assessment of the Alyzia Dam Using Modern Geotechnical Methods

12:50-13:40 LUNCH BREAK

13:40-14:25 Kerisel Lecture - Efrain Ovando Shelley

Session Chair: Alessandro Flora (TC301 Chair)

UNAM, Mexico

Geotechnics for the preservation of the architectural heritage of a sinking city

Mexico City, with more than 20 million inhabitants, is sinking due to extensive water exploitation. It also lies, mostly, over extremely soft and compressible clays that have induced differential settlements in the whole of its urban infrastructure, including heritage buildings. This presentation describes some of the solutions and techniques with which Geotechnical Engineers have coped with the challenge of preserving these culturally relevant structures.

14:25-15:20 Underground Monuments and Rock Engineering

Session Chair: Haris Saroglou (NTUA)

14:25 – 14:35 **Nicolas Carpentier**
ID. 42 Underground Church of Saint-Emilion: Geotechnical challenges in light of heritage issues

14:35 – 14:45 **Emilio Bilotta,** Gianluca Fasano, Alessandro Flora
ID. 22 The Crypta Neapolitana: a Roman tunnel deserving new life

14:45 – 14:55 Dimitrios Egglezos, **Emmanouil Tzannidakis**, Charalambos Gouvas, Antonis Galanakis
ID. 94 Geotechnical Challenges and Stabilization Interventions in Three Greek Show Caves of Monumental Value

14:55 – 15:05 **Arash Barjasteh**
ID. 2 Hydraulic behavior of rock masses around historical underground structures (Boleiti tunnel and Daryun canal) of Shushtar City, Iran

15:05 – 15:15 **Nikolaos Antoniadis,** Wout Broere, Guillaume Rongier, Dominique Ngan-Tillard
ID. 5 Predicting Creep Behaviour in the Historical Valkenburg Calcarenite Mines Using LSTM Neural Networks

15:15 – 15:25 Dimitrios Egglezos, **Lysandros Pantelidis**
ID. 58 A Simplified 2D Methodology for Assessing the Stability of Carved Mycenaean Tombs Under Asymmetrical Geological Conditions

15:25 – 15:35 **Orazio Casablanca,** Margherita Zimbardo, Anna Scotto di Santolo
ID. 99 Stability Analysis of Excavation Fronts at the Herculaneum Archaeological Site

15:35 – 15:45 **Haris Saroglou**
ID. 109 Mitigation of rock slope instabilities affecting Cultural Heritage sites. Examples from Greece

15:45 – 15:55 **Edoardo Lusini,** Daniela Boldini, Daniele Spizzichino, Claudio Margottini
ID. 32 Assessment of Stability Conditions for a Large Block Overhanging a Nabataean Archaeological Well at the UNESCO Site of HEGRA – KSA

15:55 – 16:05 Panagiotis Sarellas
Presenter: Giannis Giannopoulos
ID. 111 Preserving the old fortress of Corfu: Geotechnical stabilization of historic masonry and rock slopes using industrial rope access techniques

16:05-16:25 COFFEE BREAK

16:25-17:05 Keynote Lecture - Alberto Ledesma

Session Chair: Marina Pantazidou (NTUA)

Examples of preserving historic buildings from the impact of tunnelling

The lecture presents 3 cases of very different buildings and the corresponding Geotechnical Engineering solutions adopted: an old farm house from 13th century, where an underpinning system was designed; the Sagrada Familia Basilica, where a barrier of stiff piles was built to protect the world heritage monument from the tunnel, and the building La Farinera, from early 20th century, where a compensation grouting was carried out.

17:05-18:15 Heritage Sites and Urban Development

Session Chair: Aristodimos Chatzidakis

17:05 – 17:15 **Debra Laefer**
ID. 49 New York City's Lost Cemeteries

17:15 – 17:25 **Dimitrios Tsoutsas,** Basil Kasimis, Michael Bardanis, Marina Dede
ID. 78 Finite element analyses of prehistoric walls under the loads of modern day shelters

17:25 – 17:35 Marialuigia Sangirardi, Fabio Rollo, Giacomo Di Santo, S. Barsoum, **Angelo Amorosi**
ID. 103 Damage induced by groundwater drawdown-related settlements on a Roman Aqueduct

17:35 – 17:45 **Emmanuel Vassilakis,** Georgios Gavalas, Aliki Konsolaki, Maria Kazantzaki, Evangelos Tsakalos, George Oikonomidis
ID. 73 Digital Twin Technology in Archaeology: Laser Scanning the Underground Mine Galleries at Agios Sostis, Sifnos

17:45 – 17:55 Federico Capata, **Matteo Iacorossi**, Francesca De Santis
ID. 4 Preserving Historical Structures in Urban Tunneling: Diaphragm Walls Embedded in Bedrock

17:55 – 18:05 **Luca Masini**, Gaetano La Grotta, Francesco Lavagnini, Sebastiano Rampello
ID. 27 3D FEM coupled simulation of TBM tunnelling and station excavation

18:05 – 18:15 **Taryn DiLorenzo**
ID. 16 Winter Road Maintenance as a Threat to Our Built Heritage

18:15 TC301 Working Group Meeting

(Members Only)

Technical Schedule

18 September

Acropolis Museum

Dimitrios Pantermalis Auditorium

Dionysiou Areopagitou 15, 11742 Athens

ATHENS 2026 TC301

09:30 am – 11:50 pm

Keynote Lecture Manolis Korres, NTUA / Academy of Athens	09:30 am
Invited Lecture Vasileia Manidaki, YSMA	10:10 am
Invited Lecture Antigoni Vrouva, NTUA	10:30 am
Invited Lecture Eleni Aggelakopoulou, YSMA	10:50 am
Curated technical presentations by TC301 Delegates	11:10 am
BREAK	**11:50 am–** 12:20 pm

12:20 pm – 3:00 pm

Keynote Lecture Christos Zerefos, NKUA / Academy of Athens	12:20 pm
Keynote Lecture Nicos Makris, SMA (USA)	1:00 pm
Invited Lecture Denis Istrati, Aarhus University / NTUA	1:40 pm
Curated technical presentations by TC301 Delegates	2:00 pm
Closing Ceremony	2:30 pm
TRANSFER/TRANSIT TO THE ACROPOLIS (delegates may grab a bite before meeting at the Acropolis entrance)	**3:00 pm–** 4:00 pm

4:00 pm – 6:00 pm

Technical Visit to the Acropolis led by Vasileia Manidaki and Eleni Aggelakopoulou	4:00 pm

09:30-10:10 Keynote Lecture - Manolis Korres

Session Chair: Androniki Miltiadou (NTUA)

NTUA / Academy of Athens

Acropolis of Athens

The lecture offers a comprehensive reading of the Acropolis of Athens, beginning with the geomorphology of the Sacred Rock and tracing the successive historical phases that shaped its present form. Architecture and construction technology are examined as expressions of the knowledge, ingenuity and evolving needs of each period. Beyond the physical development of the monument, the lecture will address the theoretical values that underpin its understanding, preservation and restoration, revealing the Acropolis as a continuously evolving cultural landscape.

Invited Lectures

Session Chair: Eleni-Eva Toumbakari (Ephorate of Antiquities of W. Attica)

10:10-10:30 Invited Lecture - Vasileia Manidaki

Acropolis Monuments Preservation Service (YSMA)

Ancient Methods, Modern Science: Restoring the Parthenon's West Pediment

10:30-10:50 Invited Lecture - Antigoni Vrouva

National Technical University of Athens

The seismic response of the north wall of the Parthenon cella: Parametric numerical investigation of structural details and restoration scenarios

10:50-11:10 Invited Lecture - Eleni Aggelakopoulou

Acropolis Monuments Preservation Service (YSMA)

Research and Conservation of the Acropolis Monuments and Circuit Walls

11:10-11:40 Greek Monuments & Environment

Session Chair: Stella Karafagka (AUTH)

11:10 – 11:30 **Dimitrios Egglezos,** Dorina Moullou, Vasso Evgenikou

ID. 57, 60 Seismic Risk Mitigation of the Acropolis Circuit Wall: Lessons from Historical Damage

11:30 – 11:40 **Michael Bardanis,** Nikos Ninis, Dionisia Michalopoulou

ID. 77 Laboratory and field investigation of the backfill behind the ancient walls of the Acropolis, Athens

11:50-12:20 BREAK

12:20-13:00 Keynote Lecture - Christos Zerefos

Session Chair: George Belokas (UniWA)

NKUA / Academy of Athens

Climate Change Impacts on UNESCO Cultural and Natural Heritage Sites in the Mediterranean

The Mediterranean region, home to numerous UNESCO World Heritage Sites of exceptional cultural and natural value, is increasingly vulnerable to the adverse effects of climate change. This lecture will present key scientific findings regarding the impacts of extreme weather events, sea-level rise, desertification, and other environmental stressors on both cultural monuments and natural landscapes. A multidisciplinary approach will be discussed, bridging climate science, heritage conservation, and policy frameworks.

13:00-13:40 Keynote Lecture - Nicos Makris

Session Chair: George Doulis (EDAFOMICHANIKI)

Southern Methodist University, USA

From Hooke's "Hanging Chain" and Milankovitch's "Druckkurve" to a Variational Formulation: The Adventure of the Thrust Line of Masonry Arches

In this lecture, we first explain the subtle difference between the thrust line and the funicular polygon; and then we proceed by showing that Milankovitch's result, t/R=0.1075 is not unique and that it depends on the stereotomy exercised. The lecture concludes that the catenary (the hanging chain), which has been used widely since the period of the enlightenment to assess the stability of masonry arches, is not a physically admissible thrust line.

13:40-14:00 Invited Lecture - Denis Istrati

Session Chair: George Doulis (EDAFOMICHANIKI)

Aarhus University / National Technical University of Athens

Simulating and Mitigating Dynamic Water Hazards on Coastal Heritage via Multiphysics Modeling and AI

14:00-14:30 Greek Monuments & Environment

Session Chair: Lysandros Pantelidis (Cyprus University of Technology)

14:00 – 14:10 **Dimitrios Egglezos**

ID. 93 Integrated Risk Assessment for Monumental Structures under Climate Change and Seismic Hazards

14:10 – 14:20 **Stella Karafagka,** Kyriazis Pitilakis

ID. 65 Effect of local soil conditions on the seismic response of free-standing multi-drum ancient Greek columns

14:20 – 14:30 **George Gazetas,** Ioannis Anastasopoulos, Vasilis Drosos

Seismic Performance of Ancient Multi -drum Columns

14:30-15:00 Closing Ceremony

15:00-16:00 TRANSFER/TRANSIT TO THE ACROPOLIS

(delegates may grab a bite before meeting at the Acropolis entrance)

16:00-18:00 Technical Visit to the Acropolis

led by Architect Vasileia Manidaki and Dr. Eleni Aggelakopoulou (YSMA)

18.09