



2nd International Conference on
**Transdisciplinary Multispectral
 Modelling and Cooperation
 for the Preservation of Cultural Heritage**
 Recapturing the World in Crisis through Culture

13-15 December 2021, Eugenides Foundation, Athens, Greece

Καινοτόμος, Διεπιστημονική, Ψηφιακή
 Διατήρηση της Πολιτιστικής Κληρονομιάς



Organized under the patronage of H.E. the President of the Hellenic Republic, Ms Katerina Sakellariopoulou, inaugurated by H.E. the Vice President of the Government of the Hellenic Republic, Mr Panagiotis Pikrammenos, with benediction bestowed by H.B. Archbishop Hieronymus II of Athens and All Greece.

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2nd International Conference TMM_CH
Transdisciplinary Multispectral Modelling and Cooperation for the
Preservation of Cultural Heritage
Recapturing the World in Crisis through Culture
13-15 December, 2021 Eugenides Foundation Athens, Greece

GENERAL PROGRAM

DAY 1 - 13.12.2021

Auditorium	Hall 1
8:30-9:00 Registrations	
9:00-10:30 Opening Session	
10:30-10:45 Coffee Break	
10:45-12:30 Panel discussion 1 The Holy Sepulchre rehabilitation project: An emblematic source of innovation <i>EDICULA Erasmus+ Strategic Partnership</i>	
12:30-14:00 Panel discussion 2 Resilience to Climate Change, Natural Hazards and Pandemic Risks – Biosafety	
14:00-15:00 Lunch Break	
15:00-16:30 Panel discussion 3 Novel Educational Approach for the Preservation of Cultural Heritage <i>EDICULA Erasmus+ Strategic Partnership</i>	15:00-16:00 Session 1 The Holy Sepulchre rehabilitation project: An emblematic source of innovation
16:30-18:15 Panel discussion 4 Preserving Compatibility, the Materiality and Integrity of Structures and Architectural Authenticity	16:00-19:00 Session 2 Resilience to Climate Change, Natural Hazards and Pandemic Risks – Biosafety
18:15-20:45 Session 4 Preserving Compatibility, the Materiality and Integrity of Structures and Architectural Authenticity	19:00-20:45 Session 3 Novel Educational Approach for the Preservation of Cultural Heritage

During the conference, Hall 2 will be at the disposal of the panelists and the session chairs, for preparatory meetings

GENERAL PROGRAM

DAY 2 - 14.12.2021

Auditorium	Hall 1
<p>09:00-10:30 Panel discussion 5 Advanced Non Destructive and Structural Techniques for Diagnosis, Redesign and Health Monitoring <i>In memoriam: Prof. Ioannis Prasianakis</i></p>	
<p>10:30-10:45 Coffee Break</p>	
<p>10:45-12:30 Panel discussion 6 Earthquake and structural rehabilitation 12:30-14:00 Panel discussion 7 Archaeology - Archaeometry – Archaeogene</p>	<p>10:45-14:00 Session 5 Advanced Non Destructive and Structural Techniques for Diagnosis, Redesign and Health Monitoring</p>
<p>14:00-15:00 Lunch Break</p>	
<p>15:00-16:45 Panel discussion 8 Bridging Heritage Stakeholders, Science and Industry 16:45-18:30 Panel discussion 9 Transdisciplinary dialogue for World Heritage at risk: The exemplary Hagia Sophia</p>	<p>15:00-17:00 Session 6 Earthquake and structural rehabilitation 17:00-19:30 Session 7 Archaeology - Archaeometry – Archaeogene</p>

During the conference, Hall 2 will be at the disposal of the panelists and the session chairs, for preparatory meetings

GENERAL PROGRAM

DAY 3 - 15.12.2021

Auditorium	Hall 1
<p>09:00-10:30 Panel discussion 10 Digital Heritage a holistic approach <i>Research Program RESPECT, PA 2014-2020</i></p>	
<p>10:30-10:45 Coffee Break</p>	
<p>10:45-12:30 Panel discussion 11 Green deal and blue deal for local and regional Sustainable Development <i>Researchers' Night at NTUA 2021 Post event</i></p> <ul style="list-style-type: none"> ▪ Revealing and Preserving Cultural and Natural Assets for Isolated Areas Development with Social Participation <i>Research Program AEI, PA 2014-2020</i> <p>12:30-14:00 Panel discussion 12 Green deal and blue deal for Sustainable development of Isolated Areas <i>Researchers' Night at NTUA 2021 Post event</i></p> <ul style="list-style-type: none"> ▪ Sustainable Land Management, Rural and Urban Development through Preserving, Reusing and Revealing Cultural Heritage <i>Research Program AEI, PA 2014-2020</i> 	<p>10:45-14:00 Session 10 Digital Heritage a holistic approach</p>
<p>14:00-15:00 Lunch Break</p>	
<p>15:00-16:45 Panel discussion 13 Historic cities and centers: New Reuse and preservation strategies applying Circular Economy</p> <p>16:45-18:30 Panel discussion 14 Recapturing the World in Crisis through Culture</p>	<p>15:00-19:30 Sessions 11, 12, 13 & 14 Preservation, Reuse and Reveal of Cultural Heritage through Sustainable Land Management, Rural and Urban Development to Recapture the World in Crisis through Culture</p>
<p>19:00-20:00 General Discussion & Closure</p>	

During the conference, Hall 2 will be at the disposal of the panelists and the session chairs, for preparatory meetings



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DETAILED PROGRAM

DAY 1 - 13.12.2021

13.12.21 | 09:00-10:30 Auditorium

Opening Session

Introductory speech

President of the International Steering Committee of the TMM_CH Conference, Professor **Moropoulou Antonia** - National Technical University of Athens, School of Chemical Engineering - Chief Scientific Supervisor of the Holy Aedicule's rehabilitation of the Holy Sepulchre in Jerusalem, Head of the NTUA Interdisciplinary Team

Welcome Address

Rector of the **National Technical University** of Athens, Professor **Andreas Boudouvis**

President of **TCG** Technical Chamber of Greece, **Giorgos Stasinou**

Inauguration of the Conference

H.E. the Vice President of the Greek Government, Mr Panagiotis Pikrammenos

Addresses

President of **ETEK** Cyprus Scientific and Technical Chamber, **Constantinos Constanti**

National Geographic Society, Dr **Fredrik Hiebert**, Archaeologist

Founder and President of **ChiFA** Cultural Heritage Finance Alliance, **Bonnie Burnham** – President Emerita of WMF World Monuments Fund

Secretary General of **ICOMOS** International Council of Monuments and Sites, Professor **Mario Santana Quintero** – Carleton University, Department of Civil and Environmental Engineering

President of the International Committee **CIPA** Heritage Documentation, Associate Professor **Efstratios Stylianidis** - Vice Rector for Research and Lifelong Learning of the Aristotle University of Thessaloniki

Advisor to the Secretary General of **OWHC** Organization of World Heritage Cities, **Lee Minaidis**

Director of **UNESCO Chair on "Digital Cultural Heritage"**, Dr **Marinos Ioannides** - Cyprus University of Technology

Director of **UNESCO Chair on "Culture, Tourism, Development"**, Professor **Maria Gravari-Barbas** - Paris 1 Panthéon-Sorbonne University - Institute of Research and Higher Studies on Tourism IREST

Treasurer of **SEFI** European Society for Engineering Education, Assistant Professor **Pieter de Vries** – Delft University of Technology

About

Innovative scientific methodologies and challenging projects marking future trends in the protection of cultural heritage, have initiated a universal conversation within a holistic approach, merging capabilities and know-how from the scientific fields of architecture, civil engineering, surveying engineering, materials science and engineering, information technology and archaeology, as well as heritage professionals and state holders in cultural heritage. The advanced digital documentation permits the data fusion of interdisciplinary innovative modelling, analytical and non-destructive techniques, supporting the emergence of a transdisciplinary field for multispectral sustainable preservation and management of cultural heritage. Within this field communication, social awareness and participation is enhanced.

The project of the rehabilitation of Holy Sepulchre's Holy Aedicule as a pilot multispectral, multidimensional, novel approach through transdisciplinarity and cooperation in the protection of monuments motivated the organization of this Conference. The know how transfer organized by the EDICULA Erasmus+ project finds its place within the Conference Panels.

The scope of the 2nd TMM_CH Conference is to present the latest developments in research and innovation that identify novel trends to build an interdisciplinary approach to conservation and holistic digital documentation of cultural heritage. The utilization and reuse of monuments, historic cities and sites, forms the framework of a sustainable preservation of cultural heritage, in accordance with the principles of circular economy; in terms of respect and protection of values, materials, structures, architecture and landscape; with an informed society, able to participate effectively in the policies that will design and implement the new strategies required. Sharing knowledge, experiences, and recommendations about sustainable cultural heritage approaches and practices at a moment of great risk and a time of renewed possibilities, will reorientate conversation to explore the current conditions and contours of the World in crisis recapturing itself through Culture, on the basis of reuse of heritage assets to generate revenue for a sustainable preservation towards circular economy, relaunching development.

13.12.21 | 10:45-12:30 Auditorium

Panel discussion 1: The Holy Sepulchre rehabilitation project: An emblematic source of innovation

EDICULA Erasmus+ Strategic Partnership "Educational Digital Innovative CULTural heritage related Learning Activities"- Innovation Session

Moropoulou Antonia, Professor, National Technical University of Athens, School of Chemical Engineering - Chief Scientific Supervisor of the Holy Aedicule's rehabilitation of the Holy Sepulchre in Jerusalem, Head of the NTUA Interdisciplinary Team - **Moderator**

Dimas Christos, Deputy Minister for Research and Innovation, Ministry of Development and Investments of the Hellenic Republic

Katsaniotis Andreas, Deputy Minister for Diaspora Greeks, Ministry of Foreign Affairs of the Hellenic Republic

Burnham Bonnie, Cultural Heritage Finance Alliance, President - World Monuments Fund WMF, President Emerita

Hiebert Fredrik, Dr. Archaeologist, National Geographic Society

Korres Manolis, Professor Emeritus, National Technical University of Athens, School of Architecture-Academy of Athens – member of the NTUA Interdisciplinary Team scientific responsible for the Holy Aedicule's rehabilitation of the Holy Sepulchre in Jerusalem

Panel discussion 1: The Holy Sepulchre rehabilitation project: An emblematic source of innovation

EDICULA Erasmus+ Strategic Partnership "Educational Digital Innovative CULTural heritage related Learning Activities"- Innovation Session

Georgopoulos Andreas, Professor, National Technical University of Athens, School of Rural, Surveying and Geoinformatics Engineering – International Council of Monuments and Sites ICOMOS, Member of the Board – member of the NTUA Interdisciplinary Team scientific responsible for the Holy Aedicule's rehabilitation of the Holy Sepulchre in Jerusalem- **Rapporteur**

Bafataki Vicky, Journalist, Archaeologist – Giuseppe Sciacca International Awards, General Secretary

Sanmartín Fulgencio, Policy Officer at European Commission

Sela Wiener Adi, Adjunct Lecturer, Bezalel Academy of Arts and Design, Urban Design Master's Degree Program – ICOMOS Israel, Cultural Routes Scientific Committee, Cultural Routes – Edicula Consortium

Asscher Yotam, Israel Antiquities Authority, Artifacts Treatment and Laboratories Department, Analytical Laboratory, Director, Edicula Consortium

Papakosta Kalliopi, Archaeologist, Hellenic Research Institute of Alexandrian Civilization HRIAC – Head of the excavation at the Shallalat Gardens in Alexandria, Edicula Consortium

Salakidis Antonios, CEO PerpetielSI SRL, Edicula Consortium

Favero Gabriele, Associate Professor, Sapienza University of Rome, Master's Degree Programme, Science and Technologies for the Conservation of Cultural Heritage - Edicula Consortium

With the presence of His Beatitude, **Archbishop Hieronymus II of Athens and All Greece**

13.12.21 | 12:30-14:00 Auditorium

Panel discussion 2: Resilience to Climate Change, Natural Hazards and Pandemic Risks – Biosafety

Zerefos Christos, Secretary General, Academy of Athens; Climate Envoy for Greece – **Moderator**

Alexandrakis Georgios, Foundation for Research and Technology Hellas FORTH, Institute of Applied and Computational Mathematics, Coastal and Marine Research Laboratory

Alexopoulos Konstantinos, retired General, Defense and Civil Emergency Planning expert - The Grand Priory of Greece in the "Sovereign Military Order of the Temple of Jerusalem", representative

Chasapi Anastasia, Research Scientist, Centre for Research and Technology, Hellas CERTH - DNASequences SRL, Bioinformatics Expert

Gerasopoulos Evangelos, National Observatory of Athens, Institute for Environmental Research and Sustainable Development, Research Director

Moropoulou Antonia, Professor, National Technical University of Athens

Padeletti Giuseppina, National Research Council Roma, Research Director - European Materials Research Society

Papadakis Vagelis, Professor, University of Patras, Department of Environmental Engineering, Physical and Chemical Environmental Processes, Durability and Sustainability of Constructions

Piaia Emanuele, Research Associate, University of Ferrara, Department of Architecture

Panel discussion 2: Resilience to Climate Change, Natural Hazards and Pandemic Risks – Biosafety

Koundouri Phoebe, Professor and Director of ReSEES Research Laboratory, Athens University of Economics and Business - Director of Sustainable Development Unit and EIT Climate-KIC Hub Greece, Athena Information Technology Research Center – President-Elect of the European Association of Environmental and Resource Economists - Fellow World Academy of Art and Science - Co-chair SDSN Europe & SDSN Greece – **Rapporteur**

13.12.21 | 15:00-16:30 Auditorium

Panel discussion 3: Novel Educational Approach for the Preservation of Cultural Heritage EDICULA Erasmus+ Strategic Partnership "Educational Digital Innovative CULTURAL heritage related Learning Activities"- Educational Session

Moropoulou Antonia, Professor, National Technical University of Athens, School of Chemical Engineering - EDICULA Erasmus+ Strategic Partnership Project Coordinator – **Moderator**

Arakadaki Maria, Associate Professor, Aristotle University of Thessaloniki, School of Architecture - AUTH Post-Graduate MSc Program "Protection, Conservation and Restoration of Civilization Monuments", Director

Caradimas Costas, Professor, National Technical University of Athens, School of Architecture - NTUA Post-Graduate MSc Program "Protection of Monuments", Director

Bakolas Stelios, Associate Professor, National Technical University of Athens, School of Chemical Engineering - NTUA Post-Graduate MSc Program "Protection of Monuments" Direction "Materials and Conservation Interventions", Studies Director

Lampropoulou Antonia, National Technical University of Athens - EDICULA Erasmus+ Strategic Partnership, Evaluator of Curricula Reformation

Lobovikov-Katz Anna, NB Haifa School of Design, Senior Lecturer - Technion Israel Institute of Technology, Teaching Fellow (Senior Lecturer)

Pouli Paraskevi, Researcher, Foundation for Research and Technology-Hellas, Institute of Electronic Structure and Laser FORTH-IESL – OPTO-CH summer courses

Turner Mike, Professor, Bezalel Academy of Arts and Design Jerusalem - UNESCO Chair in Urban Design and Conservation Studies - EDICULA Erasmus+ Strategic Partnership, Steering Committee member

Zendri Elisabetta, Associate Professor, University Ca' Foscari of Venice, Department of Environmental Engineering, Informatics and Statistics - University Ca' Foscari of Venice MSc Program "Conservation Science and Technology for Cultural Heritage", Coordinator

Favero Gabriele, Associate Professor, Sapienza University of Rome, Master's Degree Programme, Science and Technologies for the Conservation of Cultural Heritage - EDICULA Erasmus+ Strategic Partnership, Steering Committee member – **Rapporteur**

13.12.21 | 16:30-18:15 Auditorium

Panel discussion 4: Preserving Compatibility, the Materiality and Integrity of Structures and Architectural Authenticity

Tournikiotis Panayotis, Professor, National Technical University of Athens, School of Architecture Dean – **Moderator**

Efesiou Irene, Professor Emeritus, National Technical University of Athens, School of Architecture - NTUA Post-Graduate MSc Program "Protection of Monuments" f. Director

Eleftheriou Vasiliki, Ministry of Culture and Sports of the Hellenic Republic, Acropolis Restoration Service, Director

Exadaktylos George, Professor, National Technical University of Athens, School of Applied Mathematical and Physical Sciences, Department of Mechanics

Papageorgiou Angelos, Associate Professor, University of Ioannina, Department of Architecture, Chair

Philokyrou Maria, Associate Professor, University of Cyprus, Department of Architecture

Rajčić Vlatka, Professor, University of Zagreb, Faculty of Civil Engineering

Spathis Panagiotis, Professor, Aristotle University of Thessaloniki, Department of Chemistry, President

Vayas Ioannis, Professor, National Technical University of Athens, School of Civil Engineering, Department of Structural Engineering

Vlachoulis Themistoklis, Ministry of Culture and Sports of the Hellenic Republic, Directorate for the Restoration of Byzantine and Post-byzantine Monuments, Director

Maravelaki Pagona-Noni, Professor, Technical University of Crete, School of Architecture, Laboratory of Materials for Cultural Heritage and Modern Building, Head – **Rapporteur**

13.12.21 | 18:15-20:45 Auditorium

Session 4: Preserving Compatibility, the Materiality and Integrity of Structures and Architectural Authenticity

Id	Title	Authors
88	Conservation interventions at the Acropolis wall	E. Aggelakopoulou, A. Tsimereki, E. Ksinopoulou, V. Eleftheriou Technical Office and Surface Conservation Laboratory, The Acropolis Restoration Service, Ministry of Culture and Sports
31	The Voyatzis Mansion in Aegina, Greece: Historical and architectural approach and physicochemical documentation of the wall painting decoration	Athena Georgia Alexopoulou, Zoe Georgiadou, Panagiotis Ilias and Agathi Anthoula Kaminari ARTICON LAB, DesArDo LAB, UNIWA
54	Memories of the Orphanage - Prison of Aegina. Interpretation of a difficult heritage and proposals on its museology display	Myrto Marini UNIWA
163	The Bell – tower of Saint Barbaros in the medieval 'Borgo' of Potamos in Corfu: historical documentation and multi- disciplinary proposal for its preservation	Polymeri Evi, Charalampos Mouzakis, Athanasios Efstathiou, George Pantazis Ionian University, NTUA

Session 4: Preserving Compatibility, the Materiality and Integrity of Structures and Architectural Authenticity

Id	Title	Authors
270	Interdisciplinary project for the Catholicon rehabilitation of the Varnakova Monastery	Marilena Tsakoumaki, Julia Vobiri, Georgios Andriotakis, Charalabos Mouzakis, Nikos Moropoulos, Vasilis Keramidas, Mary Apostolopoulou, Antonia Moropoulou NTUA, Sorbonne
87	The project "Preserve" and the related policy of the Hellenic Ministry of Environment and Energy for the protection of tangible Cultural Heritage	Konstantina Siountri, Avgi Vassi, Kalliopi Papadaki, Maria Poulou, Efthimios Bakogiannis Ministry of Environment and Energy, University of the Aegean, NTUA
32	Characterisation of Natural Stone from the Archaeological Site of Pella	Panagiotis Spathis, Maria Mavrommati, Eirini Gkrava, Vasilios Tsiridis, Ioannis Karapanagiotis, Thodoris Karapantsios AUTH, AEATH
236	old fabrics ΠΕ.ΡΙ.ΤΟ_ΟΙ.ΚΕΙ.Ο	Delia Tzortzaki UIB
69	Original varnish recipes in post-byzantine painting manuals	Georgios Mastrotheodoros, Konstantinos Beltsios NTUA, UNIWA, Institute of Nanoscience and Nanotechnology
60	A study of gemstones of the I. D. Passa collection, hosted at the Byzantine and Christian Museum	Eirini Griva, Thomas Katsaros, Theodore Ganetsos, Maria Perraki NTUA, Byzantine and Christian Museum, UNIWA
43	Diverse Approaches to Negotiating and Transforming Industrial Architectural Heritage	Dimitrios Makris, Maria Moira UNIWA
146	A pointed falsework or a false decentering: Restoration and consolidation of Tsipiani bridge.	Angelos Papageorgiou, Labros Lolos UOI, DUTH
52	Innovative materials for the restoration of historical monuments	Efstathia Pavlaku, Anastasios Agrafiotis, Theokleiti Tsolaki, Christine Lemonia, Emily Zouvani, Christakis Paraskeva, Petros Koutsoukos UPATRAS, FORTH/ICE-HT

13.12.21 | 15:00-16:00 Hall 1

Session 1: The Holy Sepulchre rehabilitation project: An emblematic source of innovation

Id	Title	Authors
237	Innovative holistic framework for the management and analysis of CH data	Emmanouil Alexakis, Alexandros Raikos, Antonis Rifios, Dimosthenis Kyriazis, Antonia Moropoulou NTUA, UNIPI
82	The grouting process as an innovative tool for the assessment of the state of preservation of the internal structure of the Holy Aedicule of the Holy Sepulchre	Kyriakos Lampropoulos, Maria Apostolopoulou, Elisavet Tsilimantou, Antonia Moropoulou NTUA
159	Deep learning approach for the identification of structural layers in historic monuments from Ground Penetrating Radar images	Emmanouil Alexakis, Kyriakos Lampropoulos, Nikoloas Doulamis, Anastasios Doulamis, Antonia Moropoulou NTUA
95	Archaeogenomics for the microbiota characterization of the Holy Aedicule, of the Holy Sepulchre in Jerusalem	Ekaterini Delegou, Christos Karapiperis, Zoi Hilioti, Valasiadis Dimitris, Athanasia Alexandridou, Vasiliki Rihani, Maria Kroustalaki, Christos Ouzounis, Antonis Salakidis, Antonia Moropoulou NTUA, DNASequence SRL Hellas, Institute of Applied Biosciences

13.12.21 | 16:00-19:00 Hall 1

Session 2: Resilience to Climate Change, Natural Hazards and Pandemic Risks – Biosafety

Id	Title	Authors
138	Improved Resilience and Sustainable Reconstruction of Cultural Heritage Areas to cope with Climate Change and Other Hazards based on Innovative Algorithms and Modelling Tools	Kyriakos Labropoulos, Charalampos Zafeiropoulos, Ioannis Rallis, Anastasios Doulamis, Nikolaos Doulamis, Antonia Moropoulou NTUA
57	A multi- and interdisciplinary methodological approach for monitoring Cultural Heritage Built Assets: the HERACLES experience	Amalia Siatou, George Alexandrakis, Paraskevi Pouli, Antonella Curulli, Elissavet Kavoulaki, Snjezana Knezic, Giuseppina Padeletti Revive-art.works, FORTH-IACM, FORTH-IESL, CNR, Ephorate of Antiquities of Heraklion, TIEMS, UNIST
16	Development of a Methodology to Monitor and Evaluate the Adaptation of Greek Cultural Heritage to the effects of Climate Change.	Eleni Maistrou, Fani Mallouchou-Tufano, Vasiliki Pougkakioti, Georgia Kotzamani, Miltiades Lazoglou ELLINIKI ETAIRIA Society for the Environment and Cultural Heritage

Session 2: Resilience to Climate Change, Natural Hazards and Pandemic Risks – Biosafety

Id	Title	Authors
70	Multi-hazard risk assessment of urban areas: Exposure and physical vulnerability indicators for the seismic risk assessment of the Lisbon Metropolitan Area unreinforced masonry building stock	Maria Xofi, José Carlos Domingues, Pedro P. Santos, Susana Pereira, Sérgio C. Oliveira, Eusébio Reis, , José Luís Zêzere, Ricardo A. C. Garcia, Paulo B. Lourenço, Tiago Miguel Ferreira ISISE, IGOT, UWE
83	Accelerated ageing test for the evaluation of stones durability to salt crystallization	Niki Galanaki, Ekaterini Delegou, Theodore Bris, Antonia Moropoulou NTUA
81	Root-Cause Analysis on the risk of process failure when testing the resilience of a stone masonry building	Dimitra Passa, Stamatia Gavela, Georgios Papadakos, Georgios Karydis School of Pedagogical and Technological Education, Domo+Lysis Lab
58	Strategic planning of sampling locations for the environmental impact assessment of the historic Hellenikon airport in Athens, Greece	Kyriakos Lampropoulos, Dimitrios Tamvakis, Antonios Samiotakis, Antonia Moropoulou NTUA, INTRAKAT
64	Resilience of Cultural Heritage Buildings through Seismic Isolation	Eftychia Apostolidi. Stephanos Dritsos TU-DARMSTADT, UPATRAS
66	Addressing risks in utilizing nanomaterial products in stone sector and cultural heritage	Georgios Zaverdinos, Dimitrios Dragatogiannis DELTA Materials Process & Innovation Solutions
3	Preservation and restoration of films and paper documents after their exposure to extreme environmental conditions (Case study of the historical archive of the Communist Party of Greece)	Panajiotis Mavrantonis NTUA
139	TEOS-PDMS-Calcium Oxalate Hydrophobic Nanocomposite for Protection and Stone Consolidation	Pagona-Noni Maravelaki, Kali Kapetanaki, Dimitris Stefanakis TUC
141	A commercial polycyanoacrylate adhesive for glass restoration of artifacts of cultural heritage:study of its ageing behaviour.	Evangelia Vouvoudi, Panagiotis Morfis, Evangelia Chatzicharistou, George Tamias, Dimitris Achilias AUTH
142	Fluorosilanated hydrophobic coating for the protection of substrates found in artifacts.	Fotios Adamopoulos, Evangelia Vouvoudi, Dimitris Achilias, Ioannis Karapanagiotis AUTH, AEATH
155	Regulatory framework on the protection of cultural heritage	Eugenia Giannini NTUA
91	Tourism, Cultural Heritage and Climate Change Adaptation	Harry Coccossis, Constantinos Cartalis UTH, NTUA

Session 3: Novel Educational Approach for the Preservation of Cultural Heritage

Id	Title	Authors
239	Innovative experiences in teaching conservation. Involving communities' interests on preservation topics by fast investigations and social media dissemination	Stefano Della Torre, Rossella Moioli, Lorenzo Cantini POLIMI
47	OPTO-CH summer courses on laser analysis, diagnosis and conservation of Heritage objects and monuments; content, experiences and future prospects	Paraskevi Pouli, Kristalia Melessanaki, Alberto deTagle, Demetrios Anglos FORTH-IESL, Freelance Conservation Scientist and Consultant, UOC
48	Opening laser laboratories physically and digitally to the public; challenges and prospects	Paraskevi Pouli, Demetrios Anglos, Chrysoula Bekiari, Costantinos Vasiliadis FORTH-IESL, UOC, FORTH-ICS, The Acropolis Museum
238	Heritage Preservation Education for the General Public - Revisited	Anna Lobovikov-Katz, Antonia Moropoulou, Agoritsa Konstanti, Kyriakos Lampropoulos Technion - Israel Institute of Technology, NTUA
201	Exploring the process of educational visits in primary school education: comparative analysis of studies of grounded theory through the field of cultural communication	Maria Drakaki University of the Aegean
156	ICT tools in Designing Preschool Educational Activities on Historical Events	Jenny Pange, Alina Degteva, Zoi Nikiforidou UOI, HOPE
13	An approach to facilitate visitors' engagement with Contemporary Art in a Virtual Museum	Christina Tsita, Charalampos Georgiadis, Maria Zampeti, Evi Papavergou, Syrago Tsiara, Alexandros Pedefoudas, Dionysios Kehagias Centre for Research & Technology Hellas, Metropolitan Organisation of Museums of Visual Arts of Thessaloniki
144	Scientific Architecture of the educational toolkit of the project EDICULA	Antonia Moropoulou, Kyriakos Lampropoulos, Ioannis Rallis, Anastasios Doulamis NTUA

DAY 2 - 14.12.2021

14.12.21 | 09:00-10:30 Auditorium

<p>Panel discussion 5: Advanced Non Destructive and Structural Techniques for Diagnosis, Redesign and Health Monitoring <i>In memoriam: Prof. Ioannis Prasianakis</i></p>
<p>Osman Ahmad, Professor, University of Applied Sciences in Saarbrücken - Fraunhofer Institute for Nondestructive Testing IZFP – Moderator</p>
<p>Christaras Basile, Emeritus Professor, Aristotle University of Thessaloniki, Department of Geology, Laboratory of Engineering Geology and Hydrogeology</p>
<p>Karagiannis Georgios, "ORMYLIA" Foundation, Scientific Director</p>
<p>Kordatos Ioannis, Hellenic Welding Association, Representative of the Hellenic Society of Non-Destructive Testing HSNT – EAEMKE, deputy member of the Board – Rapporteur</p>
<p>Lampropoulos Kyriakos, Scientific and Teaching Staff, National Technical University of Athens, School of Chemical Engineering, Laboratory of Materials Science and Engineering</p>
<p>Loutas Theodoros, Associate Professor, University of Patras, Department of Mechanical Engineering and Aeronautics, Laboratory of Applied Mechanics and Vibrations</p>
<p>Matikas Theodoros, Professor, University of Ioannina, Department of Materials Science and Engineering, Laboratory of Mechanics, Smart Sensors and Nondestructive Evaluation</p>
<p>Sapountzakis Evangelos, Professor, National Technical University of Athens, Vice Rector – School of Civil Engineering, Department of Structural Engineering</p>
<p>Tsatsanifos Christos, Geotechnical Expert - International Society for Soil Mechanics and Geotechnical Engineering, Technical Committee 19 "Preservation of Historic Sites", former Chairman</p>

14.12.21 | 10:45-12:30 Auditorium

<p>Panel discussion 6: Earthquake and structural rehabilitation</p>
<p>Žarnić Roko, former Professor, former Minister of the Environment and Spatial Planning of the Republic of Slovenia - Appointed expert on preparations for the EU Horizon 2020 - Moderator</p>
<p>Dritsos Stefanos, Professor Emeritus, University of Patras, Department of Civil Engineering, Seismic Assessment and Redesign of Existing Structures</p>
<p>Erdik Mustafa, Professor Emeritus, Bogazici University, Kandilli Observatory and Earthquake Research Institute</p>
<p>Mouzakis Charis, Associate Professor, National Technical University of Athens, School of Civil Engineering, Laboratory for Earthquake Engineering, Director - member of the NTUA Interdisciplinary Team scientific responsible for the Holy Aedicule's rehabilitation of the Holy Sepulchre in Jerusalem</p>
<p>Oliveira V. Daniel, Associate Professor, University of Minho, Department of Civil Engineering</p>
<p>Spyrakos Constantine, Professor, National Technical University of Athens, School of Civil Engineering - member of the NTUA Interdisciplinary Team scientific responsible for the Holy Aedicule's rehabilitation of the Holy Sepulchre in Jerusalem</p>

Panel discussion 6: Earthquake and structural rehabilitation

Triantafyllou Athanasios, Professor, University of Patras, Department of Civil Engineering, Structural Materials Laboratory

Papanicolaou Corina, Associate Professor, University of Patras, Department of Civil Engineering, Structural Materials Laboratory – **Rapporteur**

Stavroulakis Georgios, Professor, Technical University of Crete, School of Production Engineering and Management, Institute of Computational Mechanics and Optimization - **Rapporteur**

14.12.21 | 12:30-14:00 Auditorium

Panel discussion 7: Archaeology - Archaeometry – Archaeogene

Korka Elena, Dr Archaeologist, Ministry of Culture and Sports of the Hellenic Republic, General Directorate of Antiquities and Cultural Heritage, Honorary Director General –Hellenic Blue Shield, President – **Moderator**

Athnasiou Stefanos, University of Bern, Faculty of Theology

Baruch Yuval, Dr Archaeologist, Israel Antiquities Authority, Directorate General representative

Asscher Yotam, Israel Antiquities Authority, Artifacts Treatment and Laboratories Department, Analytical Laboratory, Director

Delegou Ekaterini, Scientific and Teaching Staff, National Technical University of Athens, School of Chemical Engineering, Laboratory of Materials Science and Engineering

Hiebert Fredrik, Dr Archaeologist, National Geographic

Liritzis Ioannis, Professor, University of the Aegean, Department of Mediterranean Studies, Laboratory of Archaeometry, Director

Mertzani Maria, Hellenic Ministry of Culture and Sports of the Hellenic Republic, Directorate of Conservation of ancient and Modern Monuments, Director

Ouzounis Christos, Professor, Aristotle University of Thessaloniki, Department of Informatics - DNASequences SRL, CSO

Papakosta Kalliopi, Archaeologist, Hellenic Research Institute of Alexandrian Civilization HRIAC – Head of the excavation at the Shallalat Gardens in Alexandria- EDICULA Erasmus+ Strategic Partnership, Steering Committee member

Ward-Perkins Bryan, University of Oxford, Trinity College - Oxford Centre for Late Antiquity, Chair - Ertegun Graduate Scholarship Programme in the Humanities, Emeritus Director

Zacharias Nikos, Professor, University of Peloponnese, Department of History, Archaeology and Cultural Resources Management - School of Humanities and Cultural Studies, Dean – MSc Program “Cultural Heritage Materials and Technologies”, Director - **Rapporteur**

14.12.21 | 15:00-16:45 Auditorium

Panel discussion 8: Bridging Heritage Stakeholders, Science and Industry

Androulidaki Amalia, Ministry of Culture and Sports of the Hellenic Republic, General Directorate for the Restoration, Museums and Technical Works, General Director - **Moderator**

Achniotis Stelios, Cyprus Scientific and Technical Chamber ETEK, Representative

Daktylidis Michail, Panhellenic Association of Engineers Contractors of Public Works PEDMEDE, President

Dalkafouki Maria, Dalkafouki House Ltd, Chief Executive Officer

Nicoletti Andrea, Master Builders Solutions, Product Manager

Kakali Glykeria, Professor, National Technical University of Athens, School of Chemical Engineering, Dean

Kaliampakos Dimitrios, Professor, National Technical University of Athens, School of Mining and Metallurgical Engineering, Dean

Komnitsas Konstantinos, Professor, Technical University of Crete, School of Mineral Resources Engineering

Katsiotis Marios, PhD, TITAN Cement Group, Research & Innovation Manager

Zafeiri Styliani, Yioi P. Zafeiri Techniki Ltd

Vlachos Vangelis, Development and Tourism Promotion Company of the Municipality of Athens, Chief Executive Officer

Rodriguez-Maribona Isabel, European Construction Technology Platform ECTP, Heritage and Regeneration Committee, Chair – **Rapporteur**

14.12.21 | 16:45-18:30 Auditorium

Panel discussion 9: Transdisciplinary dialogue for World Heritage at risk: The exemplary Hagia Sophia

Kriari Ismini, Professor, Panteion University of Social and Political Sciences, former Rector – European Research and Educational Centre of Bioethics and Legislation – **Moderator**

Çakmak Ahmet (invited), Professor Emeritus, Princeton University - Head of the Princeton University Research Team for Hagia Sophia Earthquake Protection

Grekas Aristarchos, Archimandrite of the Holy Archdiocese of Athens - Assistant Professor, National and Kapodistrian University of Athens, Department of Theology - Hellenic Institute of Cultural Diplomacy

Loukopoulou Politimi, Conservator, International Council of Museums ICOM Hellenic National Committee, Member of the Board

Moropoulou Antonia, Professor, National Technical University of Athens, School of Chemical Engineering - NTUA Research Team for Hagia Sophia Protection, Head

Prodromou Elizabeth, Visiting Associate Professor, Tufts University, Fletcher School of Law and Diplomacy - Initiative on Religion, Law, and Diplomacy, Faculty Director

Theodorou Theodoros, Ambassador on Honors

Pissaridis Chrysanthos, ICOMOS-Cyprus, President - **Rapporteur**

Session 5: Advanced Non Destructive and Structural Techniques for Diagnosis, Redesign and Health Monitoring

Id	Title	Authors
130	Non-destructive 3D reconstruction of an Hagia Sophia clone mosaic utilizing ultrasonography combined with an accurate motion planning	Stamatios Amanatiadis, Georgios Karagiannis, Evdoxios Mimis "ORMYLIA" Foundation, Diagnosis Multisystems
9	Unraveling the Materials and Techniques of Post-Byzantine Icons from Epirus, Greece	Anthoula Poulia, Konstantina Sougioultzi, Ioannis Liougos, Alkiviadis Paipetis UIO, UOI, Conservation of Works of Art
12	Nondestructive Assessment of post-Byzantine Icon	Georgia Varfi, Anastasios Asvestas, Dimitrios Exarchos, Spyridoula Farmaki, Georgios P. Mastrotheodoros, Dimitrios Anagnostopoulos, Theodore Matikas UOI, UNIWA, NCSR "Demokritos"
11	Inspecting the healing process in an artificial stone used for repair works containing crystallines	Maria Stefanidou, Evangelia Tsampali, Stamatios Amanatiadis, Georgios Karagiannis AUTH, Ormylia Art Diagnosis Centre, Diagnosis Multisystems
24	Reflectance spectroscopy as a non-invasive technique for preliminary characterization of soluble salts on historical masonries	Dafne Cimino, Laura Falchi, Martina Corradini, Paola Lucero Gomez, Eleonora Balliana, Elisabetta Zendri Ca' Foscari University of Venice
46	Adaption of imaging techniques for monitoring Cultural Heritage objects	Amalia Siatou, Athanasia Papanikolaou, Evdokia Saiti HES-SO, UBFC, WUT, NTNU
59	Documenting artifacts using 3D representation and nondestructive evaluation tools	Dimitrios Exarchos, Spyridoula Farmaki, Ilias Tragazikis, Anastasios Mpalaskas, Aristeidis Vasios, Varvara Papadopoulou, Theodore Matikas UOI, Greek Ministry of Culture and Sports
68	The Usefulness of X-ray fluorescence Analysis on Photocopies Identification – a case study	Lydia Tsoka, Georgios P. Mastrotheodoros, Konstantinos Choulis UNIWA, NCSR "Demokritos"
131	Mechanical and electrical properties of lime-based pastes with modified carbon nanotubes	Angeliki-Eirini Dimou, Stavros K. Kourkoulis, Ioannis Karatasios, Georgios Asimakopoulos, Nikolaos D. Alexopoulos University of the Aegean, NTUA, NCSR "Demokritos", UOI
85	Characterizing the Pigments in Wall Paintings: Comparing Portable and Stationary Multiband Remote Sensing Imaging Systems	Yotam Asscher, Shai Halevi Israel Antiquities Authority

Session 5: Advanced Non Destructive and Structural Techniques for Diagnosis, Redesign and Health Monitoring

Id	Title	Authors
97	Ground penetrating radar imaging of the western wall of the Temple Mount Jerusalem	Yuval Baruch, Uri Basson Israel Antiquities Authority, University of Haifa
188	Non-destructive evaluation of the state of preservation of the structural system of the Katholikon of the Monastery of Panagia Varnakova with ground penetrating radar	Vasileios Keramidas, Kyriakos Lampropoulos, George Bletsas-Yfantis, Elisavet Tsilimantou, Charalampos Mouzakis, Antonia Moropoulou NTUA
98	High temperatures impact on the durability of natural stones: An assessment by means of ultrasound pulse velocity measurements	Theodore Bris, Ekaterini Delegou, Matteo Morabito, Elisabeta Zendri and Antonia Moropoulou NTUA, Arcadia Ricerche s.r.l., Ca' Foscari University of Venice
80	Developing an H-BIM-ready Model by fusing data from different sensors	Dimitrios-Ioannis Psaltakis, Maria Fostini, Stavros Antonopoulos, Athena-Panagiota Mariettaki, Antonios Antonopoulos LANDMARK Athens, Dipl.-Architect, ALL3D
37	Infrared, terahertz and air-coupled ultrasonic non-invasive inspection for artworks: A comparative study on an old hand-bound book in the XIXth century	Qinqian Lei, Hai Zhang, Stefano Sfarra, Ahmad Osman, Clemente Ibarra-Castanedo and Xavier P.V. Maldague Beijing Institute of Technology, CVSL, University of L'Aquila, Department of Inspection of Components and Assemblies, University of Applied Sciences

14.12.21 | 15:00-17:00 Hall 1

Session 6: Earthquake and structural rehabilitation

Id	Title	Authors
153	Technical museum Nikola Tesla in Zagreb - survey and documentation for the enhancement of structural performance after recent earthquakes, maintenance and AR and VR applications	Vlatka Rajčić, Marco Medici, Federico Ferrari UNIZG, UNIBO, UNIFE
45	The Justinianic church on Jebel Musa, Sinai – investigation of the seismic behavior of its structural system and interpretation of its destruction mechanism	Petros Koufopoulos, Marina Myriantheos, Androniki Miltiadou, Antigoni Vrouva, Marialena Dasiou UPATRAS, Mt Sinai Foundation, NTUA, Hellenic Ministry of Culture and Sports

Session 6: Earthquake and structural rehabilitation

Id	Title	Authors
107	Seismic Assessment of Historic Concrete Structures: The case of Pedieos Post Office in Nicosia, Cyprus	Antroula Georgiou, Marios Georgiou, Ioannis Ioannou UCY
38	FEM Structural Modelling and Identification of the Neoria Monument in Chania	Panagiotis Koutsianitis, Barbara Charalambidi, Amalia Kasampali, Maria Stavroulaki, Georgios Stavroulakis TUC
39	Structural Damage Investigation of the Neoria Monument in Chania	Barbara Charalambidi, Siphesihle Motsa, Georgios Drosopoulos, Panagiotis Koutsianitis, Amalia Kassambali, Maria Stavroulaki, Georgios Stavroulakis TUC, UKZN, UCLAN
40	Discrete and XFEM Analysis for Crack Interpretation of the Neoria Monument in Chania	Siphesihle Mpho Motsa, Georgios Drosopoulos, Barbara Charalambidi, Panagiotis Koutsianitis, Amalia Kassambali, Maria Stavroulaki, Georgios Stavroulakis UKZN, UCLAN, TUC
160	Numerical investigation of the contribution of metallic dowels to the stability of multi-drum columns	Androniki Christodoulou, Olympia Panagouli UTH
90	A stochastic approach for upgrading Cultural Heritage framed concrete buildings by cable-ties to prevent progressive collapse under seismic sequences	Angelos Liolios, Antonia Moropoulou, Konstantinos Liolios, George Hatzigeorgiou, Dimitrios Peidis EAP, NTUA, BAS, DUTH
53	Seismic threat of Traditional Greek villages: The case of Vrissa - Lesbos	Irene Efesiou, Eleni Maistrou, Giorgos Kourmadas NTUA
77	The Effect of Dam Construction on Monuments	Christos Tsatsanifos International Society for Soil Mechanics and Geotechnical Engineering
145	Tracking evidence of seismic damages on ancient Roman buildings: Archaeoseismological project in Ostia	Laura Pecchioli, Michele Betti, Barbara Pintucchi HU-BERLIN, UNIFI
14	Seismic vulnerability assessment and retrofit interventions of masonry farms: a case study in the Neapolitan area	Giovanna Longobardi, Antonio Formisano University of Naples "Federico II"

Session 7: Archaeology - Archaeometry – Archaeogene

Id	Title	Authors
33	Pyramids of Argolis: Reconstruction, Orientation and Skyscape	Apostolos Vlachos, Ioannis Liritzis, Anastasia Liapi <i>University of the Aegean</i>
51	A Whiter Shade of Vase: Discovering the White Colors of Ancient Pottery	Alessandro Ciccola, Iliaria Serafini, Giorgio Mori, Roberta Curini, Paolo Postorino, Laura Medeghini, Gabriele Favero <i>UNIROMAL</i>
140	Archaeometric Study of Ancient Mortars from Minoan City of Kommos in Crete	Pagona-Noni Maravelaki, Antonis Theologitis, Meral Budak Unaler, Chrysi Kapridaki, Kali Kapetanaki, James Wright <i>TUC, American School of Classical Studies</i>
17	Information Technology and Archaeological Excavations: A Brief Review and Future Software Developments	Doukas Psarros, Georgia Bakali, Michail Stamatopoulos, Christos-Nikolaos Anagnostopoulos <i>University of the Aegean</i>
20	Enhancing Archaeological Sites. Interconnecting Physically and Digitally – InterArch	Eleni Maistrou, Konstantinos Moraitis, Yanis Maistros, Katerina Boulougoura, Amalia-Maria Konidi, Karolina Moretti <i>NTUA</i>
27	New methods for the drawing of the <i>Archaeological Forma Urbis</i> : Bohob's research in Catania	Matteo Pennisi, Laura La Rosa, Luigi Pellegrino <i>UNICT</i>
56	Integrative archaeological surveying for the enhancement of Nuraghe Piscu in Suelli (SU), Italy. Results and new perspectives	Eleonora Scopinaro, Roberto Gabrielli, Andrea Angelini <i>ISPC</i>
73	Early Hellenistic marble statue found in Alexandria, Egypt	Calliope Limneos Papakosta <i>HRIAC</i>
10	Mapping Ancient Athens: A Digital Map to Rescue Excavations	Anna Maria Theocharaki, Leda Costaki, Maria Pigaki, Wanda Papaefthimiou, Maria Pigaki, Giorgos Panagiotopoulos. <i>Dipylon Society for the Study of Ancient Topography</i>
28	Blade-like cementitious gels in ancient Roman mortars: an archaeometric study on Aqua Traiana	Laura Calzolari, Laura Medeghini, Silvano Mignardi <i>UNIROMAL</i>
42	Meet the Cultural Layers of the Past	Eugenia Kovatcheva, Victoria Muchanova, Vania Dobрева <i>UNIBIT</i>

Session 7: Archaeology - Archaeometry – Archaeogene

Id	Title	Authors
50	Re-inventing the application techniques of Byzantine and post-Byzantine masonry pointing mortars	Androniki Miltiadou, Nikolaos Delhnikolas NTUA, Hellenic Ministry of Culture and Sports
30	The Protection of Natural and Cultural Heritage Monuments, Museums and Archives from Risks: Bridging Artificial Intelligence, Risk Assessment and Stakeholders	Elena Korka, Dimitrios Emmanouloudis, Kalliopi Kravari, Nikolaos Kokkinos, Katerina Dimitriadi Hellenic Committee of the Blue Shield, IHU

DAY 3 - 15.12.2021

15.12.21 | 09:00-10:30 Auditorium

Panel discussion 10: Digital Heritage a holistic approach
Research Program RESPECT, PA 2014-2020

Ioannides Marinos, UNESCO Chair on "Digital Cultural Heritage", Director - Cyprus University of Technology – **Moderator**

Anagnostopoulos Dimosthenis, Secretary General at GSIS, Ministry of Finance and Economics of the Hellenic Republic - Professor, Harokopio University, Department of Informatics and Telematics

Georgopoulos Andreas, Professor, National Technical University of Athens, School of Rural, Surveying and Geoinformatics Engineering - International Council of Monuments and Sites ICOMOS, Member of the Board

Stylianidis Efstratios, Associate Professor, Aristotle University of Thessaloniki, Vice Rector for Research and Lifelong Learning - International Committee CIPA Heritage Documentation, President

Kyriazis Dimosthenis, Associate Professor, University of Piraeus – Representative, Research Program RESPECT An exemplary information system and methodology for the integrated management, analysis and dissemination of digital cultural heritage data coming from the rehabilitation of the Holy Aedicule

Amditis Angelos, National Technical University of Athens, Institute of Communication and Computer Systems, Research Director

Di Giulio Roberto, University of Ferrara, Department of Architecture - Research Project "Inclusive Cultural Heritage in Europe through 3D semantic modeling INCEPTION", Scientific Coordinator

Fudos Ioannis, Professor, University of Ioannina, Department of Computer Science and Engineering

Zervakis Michael, Professor, Technical University of Crete, Vice Rector of Research and Life-long Learning, School of Electrical and Computer Engineering

Doulamis Anastasios, Associate Professor, National Technical University of Athens, School of Rural, Surveying and Geoinformatics Engineering

Ronchi Alfredo, Associate Professor, Politecnico di Milano - European Commission-MEDICI Framework, General Secretary - European WG on "EU Directives and Cultural Heritage", Secretary – **Rapporteur**

15.12.21 | 10:45-12:30 Auditorium

Panel discussions 11-12: Green and blue deal for local and regional Sustainable Development

Researchers' Night at NTUA 2021 Post event

Aravossis Konstantinos, Secretary General of Natural Environment and Water, Ministry of Environment and Energy of the Hellenic Republic - Professor, National Technical University of Athens, School of Mechanical Engineering - European Green Deal, national representative – **Organizer**

Moropoulou Antonia, Professor, National Technical University of Athens – Scientific Responsible for Researchers' Night at NTUA – Coordinator of Research Program AEI Sustainable development of less developed areas by creating new tourism resources and products through analysis, documentation, modelling, management and preservation of the cultural preserve using ICT applications – **Organizer**

▪ **Revealing and Preserving Cultural and Natural Assets for Isolated Areas Development with Social Participation**

Research Program AEI, PA 2014-2020

Kremlis George, European Commission, Honorary Director - Espoo Convention, SEA Protocol on Strategic Environmental Assessment SEA, Chair of the Bureau – **Moderator**

Sdoukou Alexandra, Secretary General of Energy and Mineral Raw Materials, Ministry of Environment and Energy of the Hellenic Republic

Papagiannidis Dimitrios, Secretary General of Union Resources and Infrastructure of the Ministry of Rural Development and Food – **Rapporteur**

Chatzipetrou Athina, Hellenic Development Bank, President

Moutzouris Costas, Governor of the North Aegean Region of Greece - Professor Emeritus, National Technical University of Athens

Gizas Vasilios, Mayor of Nafpaktia

Fraggakis Evangelos, Mayor of Chalki

Giannikouris Antonis, President of Dodecanese regional branch of the Technical Chamber of Greece

La Grassa Alessandro, Centre for Social and Economic Research in Southern Italy (CRESM), President

15.12.21 | 12:30-14:00 Auditorium

Panel discussions 11-12: Green and blue deal for local and Regional Sustainable Development

Researchers' Night at NTUA 2021 Post event

Aravossis Konstantinos, Secretary General of natural Environment and Water, Ministry of Environment and Energy of the Hellenic Republic - Professor, National Technical University of Athens, School of Mechanical Engineering - European Green Deal, national representative – **Organizer**

Moropoulou Antonia, Professor, National Technical University of Athens – Scientific Responsible for Researchers' Night at NTUA – Coordinator of Research Program AEI Sustainable development of less developed areas by creating new tourism resources and products through analysis, documentation, modelling, management and preservation of the cultural preserve using ICT applications – **Organizer**

▪ **Sustainable Land Management, Rural and Urban Development through Preserving, Reusing and Revealing Cultural Heritage**

Research Program AEI, PA 2014-2020

Ioannidis Charalambos, Professor, National Technical University of Athens, School of Rural, Surveying and Geoinformatics Engineering, Dean - **Moderator**

Bakogiannis Efthimios, Secretary General of Spatial Planning and Urban Environment, Ministry of Environment and Energy of the Hellenic Republic – Assistant Professor, National Technical University of Athens, School of Rural and Surveying and Geoinformatics Engineering

Potsiou Chryssy, Professor, National Technical University of Athens, School of Rural, Surveying and Geoinformatics Engineering, - International Federation of Surveyors FIG, Honorary President

Moraitis Konstantinos, Professor Emeritus, National Technical University of Athens, School of Architecture

Charalampopoulou Betty, CEO / President Geosystems Hellas S.A

▪ **Sustainable Land Management, Rural and Urban Development through Preserving, Reusing and Revealing Cultural Heritage**
Research Program AEI, PA 2014-2020

Boniotti Cristina, Professor, Polytechnic of Milano, Department of Architecture, Built Environment and Construction Engineering

Kyriazopoulos Evangelos, Secretary General of Ports, Port Policy and Maritime Investments, Ministry of Maritime Affairs and Insular Policy of the Hellenic Republic

Kyvelou Stella, Professor, Panteion University of Social and Political Sciences, Department of Economic and Regional Development – Eastern Mediterranean Sea-Basin expert, European MSP Platform

Kampanis Nikolaos, Foundation for Research and Technology Hellas FORTH, Institute of Applied and Computational Mathematics, Coastal and Marine Research Laboratory, Research Director - **Rapporteur**

15.12.21 | 15:00-16:45 Auditorium

Panel discussion 13: Historic cities and centers: New Reuse and preservation strategies applying Circular Economy

Minaidis Lee, Advisor to the Secretary General of the Organization of World Heritage Cities OWHC – **Moderator**

Bakoyannis Kostas, Mayor of Athens

Burnham Bonnie, Cultural Heritage Finance Alliance, President - World Monuments Fund WMF, President Emerita

Petsas Stelios, Alternate Minister of Interior of the Hellenic Republic

Loizou Vicky, Secretary General for Tourism Policy and Development at Government of the Hellenic Republic

Gravari-Barbas Maria, UNESCO Chair on “Culture, Tourism, Development”, Director -Paris 1 Panthéon-Sorbonne University - Institute of Research and Higher Studies on Tourism IREST

Kampourakis Antonis (invited), Mayor of Rhodes

Maistrou Eleni, Professor Emeritus, National Technical University of Athens - Society for the Environmental and Cultural Heritage, Council of Architectural Heritage, President

Moropoulou Antonia, Professor, National Technical University of Athens, School of Chemical Engineering

Mouhli Zoubeyr (invited), Association de Sauvegarde de la Médina de Tunis, General Director

Turner Mike, Professor, Bezalel Academy of Arts and Design Jerusalem - UNESCO Chair in Urban Design and Conservation Studies

Zouain Georges (invited), GAIA-heritage, Mediterranean Urban Observatory, Principal

Della Tore Stefano, Professor, Polytechnic University of Milan, Department of Architecture, Built Environment and Construction Engineering

Coccosis Harry, Professor Emeritus, University of Thessaly, Department of Planning and Regional Development – EC consultant on spatial planning and environment, tourism, sustainable development, insular development – **Rapporteur**

15.12.21 | 16:45-18:30 Auditorium

Panel discussion 14: Recapturing the World in Crisis through Culture

Tsimas Pavlos, Journalist – **Moderator**

Roilos Panagiotis, Professor, Department of the Classics, Harvard University

Moropoulou Antonia, Professor, National Technical University of Athens, School of Chemical Engineering – President of the International Steering Committee of the TMM_CH Conference

Burnham Bonnie, Cultural Heritage Finance Alliance, President - World Monuments Fund WMF, President Emerita

Pappas Spyros, Dr European Lawyer - European Commission, Directorate General of Education and Culture, former Director General - Argo the Hellenic Network in Belgium, President

Hiebert Fredrik, Dr. Archaeologist, National Geographic Society

De Vries Pieter, Assistant Professor, Delft University of Technology - European Society for Engineering Education SEFI, Treasurer

Karapiperis Christos, Lt. Governor, American Hellenic Progressive Association (AHEPA HELLAS)

Theologou Kostas, Associate Professor, National Technical University of Athens, School of Applied Mathematics and Physical Sciences, Section of Humanities and Social Sciences –Journal Signum, Editor

Tzannini Evgenia, elected Assistant Professor, National Technical University of Athens, School of Applied Mathematics and Physical Sciences, Section of Humanities and Social Sciences – Lawyer and Law Office Chief Executive Officer

Bouratsis Sofia Eliza, Art theorist, advisor for cultural policies and curator, PhD Université Paris I – Panthéon-Sorbonne– **Rapporteur**

15.12.21 | 10:45-14:00 Hall 1

Session 10: Digital Heritage a holistic approach

Id	Title	Authors
18	The role of UAV and laser scanners in the Post-earthquake Assessment of Heritage Buildings after the 2020 Earthquakes in Croatia	Mislav Stepinac, Luka Lulić, Karlo Ožić UNIZG
19	Vra Core 4.0 Metadata Standard for the Facades of the Historic Houses of Athens (19 th – early 20 th century)	Athina Kremmyda, Konstantina Siountri, Ioannis Anagnostopoulos UNIPI, University of the Aegean, UTH
23	The value of 3D modeling of Cultural Heritage monuments with the method of digital Photogrammetry for use in Augmented Reality applications	Anastasia Labropoulou, Syridon Siakas UNIWA
36	IASIS - Integrated Cultural Heritage Management System: A Christian Monastery, a Muslim Mosque and A Contemporary State Administrative Building, Ioannina: Digital Approach.	Athina Chroni, Andreas Georgopoulos Hellenic Ministry of Culture and Sports, NTUA
41	Conservation of Greek neoclassical facade elements through their integration in a HBIM library	Elias Sakellaris, Konstantina Siountri, Christos-Nikolaos Anagnostopoulos UNIPI, University of the Aegean

Session 10: Digital Heritage a holistic approach

Id	Title	Authors
84	The use of Deep Learning in the classification of buildings at the post-revolutionary city of Athens	Ioannis Kosmopoulos, Konstantina Siountri, Christos Nikolaos Anagnostopoulos <i>UNIPI, University of the Aegean</i>
143	ICT and digital technologies. The new European Competence Centre for the preservation and conservation of Cultural Heritage	Emanuele Piaia, Federica Maietti, Roberto Di Giulio, Ernesto Iadanza <i>UNIFE</i>
154	Rebranding the World with SPHINX	Dimitra Paraskeva <i>NTUA</i>
157	How your Cultural Dataset is Connected to the Rest Linked Open Data?	Michalis Mountantonakis, Yannis Tzitzikas <i>FORTH-ICS, UOC</i>
5	Digital cartography in the service of preservation of cultural linguistic heritage: Implementing the electronic dialectal atlas of Cappadocian Greek	Dimitra Melissaropoulou, Stavros Bompolas, Charalampos Tsimpouris <i>AUTH, UPATRAS</i>
6	The Naval Base of Navarino: Mapping the Fortifications of the Italians in Pylos.	George Malaperdas, Dimitrios Panoskaltsis <i>UOP, Freelancer</i>
25	Documentation of cultural heritage monuments, by introducing new surveying technologies-implementation in Sarlitza Pallas, in Thermi Mytilene	George Garoufos, Stefania Ioannidou, Nikolaos Kanellopoulos, George Pantazis <i>NTUA</i>
26	Virtualand: An Immersive Virtual Experience for Cultural and Natural Heritage Sites	Christos Bellos, Ioannis Fudos, Angeliki Kita, Spyridoula Kolovou, Vassilis Nitsiakos, Dafni Patelou, Konstantinos Stefanou, Georgios Stergios <i>LIME Technology IKE, UOI</i>
49	Documentation of Historic Buildings for Their 3D Reconstruction In A Digital Cultural Heritage Management System	Athina Chroni, Andreas Georgopoulos <i>Hellenic Ministry of Culture and Sports, NTUA</i>
62	Heritage and Tourism - In the age of digital transition and pandemic	Alfredo M. Ronchi <i>POLIMI</i>
76	Digitizing Mystras: The Palace Complex	Vayia Panagiotidis, Nikolaos Zacharias <i>UOP</i>
92	The related policy of management of the national building stock through BIM technology and digital tools	Kalliopi Papadaki, Konstantina Siountri, Avgi Vassi, Efthimios Bakogiannis <i>Ministry of Environment and Energy, University of the Aegean, NTUA</i>
186	Digital heritage consolidation and innovation, three case studies between documentation and divulgation aims	Giorgio Verdiani, Alexia Charalambous, Ylenia Ricci <i>UNIFI</i>

Sessions 11, 12, 13 & 14: Preservation, Reuse and Reveal of Cultural Heritage through Sustainable Land Management, Rural and Urban Development to Recapture the World in Crisis through Culture

Id	Title	Authors
61	Abandoned or degraded areas in Historic Cities: the importance of a multifunctional reuse for development through the example of the Historic Commercial Triangle (Emporiko Trigono) of Athens	Aggeliki Paraschou, Grigoria Zitouni-Petrogianni, Eleni Maistrou NTUA
299	Reuse of historic buildings in the Medieval City of Rhodes to comply with the needs for sustainable urban development	Dimitris Giannakopoulos, Zografia Kerekou, Elli Menegaki, Elissavet Tsilimantou, Charalambos Ioannidis, Eleni Maistrou, Antonios Giannikouris, Antonia Moropoulou NTUA, Technical Chamber of Greece - Department of Dodecanese
22	Creating a Blended Finance Framework for Heritage-led Urban Generation	Bonnie Burnham Cultural Heritage Finance Alliance
1	Sustainable management of cultural heritage. The science of conservation in the transition towards a global sustainable model	Eleftheria Mavromati, Anna Karatzani AUTH, UNIWA
79	The riverside roads of culture as a tool for the development of Aitoloakarnania	Antonia Moropoulou, Kyriakos Lampropoulos, Anastasia Vythoulka NTUA
29	Wide-area projects in Lombardy: from a mono-sector to a multi-sector approach	Cristina Boniotti POLIMI
71	Is "Authentic Tourism" a means of preserving living cultural heritage?	Shelley-Anne Peleg University of Haifa
72	The Ottomans and the Greek Landscape: The apperception of landscape in Greece by the Ottomans and its impact on the architectural and landscape design	Konstantinos Moraitis, Panagiotis Kontolaimos, Filio Iliopoulou NTUA
74	Onions and Fowls: The "Kalamata 1821" Food Project	Vasiliki Valantou, Vayia Panagiotidis, Vasiliki Mistopoulou, Vassilis Pouloupoulos, Nikolaos Zacharias UOP
75	The 'Kalamata 1821: Roads of Freedom' Project: An Overview	Nikolaos Zacharias, Vayia Panagiotidis, Vasiliki Valantou, Georgios Rigas UOP
89	The Local Urban Plans (LUPs), the Special Urban Plans (SUPs), and the Strategic Urban Interventions of RFF	Avgi Vassi, Konstantina Siountri, Kalliopi Papadaki, Alkistis Illiadi, Anna Ypsilanti, Efthimios Bakogiannis Ministry of Environment and Energy, University of the Aegean, NTUA
94	Promotion and protection of cultural heritage through interdisciplinary approaches: the case of Souli	Elena Konstantinidou, George Pantazis NTUA

Sessions 11, 12, 13 & 14: Preservation, Reuse and Reveal of Cultural Heritage through Sustainable Land Management, Rural and Urban Development to Recapture the World in Crisis through Culture

Id	Title	Authors
137	Cultural-oriented Mobile Game Application and the Gamification of Tourism	Ioannis Rallis, George Kopsiaftis, Ilias Kalisperakis, Christos Stentoumis, Dimitris Koutsomitsos, Vivian Riga Heraklio Travel, up2metric, Tamasenco
161	Community Archive as a Platform for Development and Preservation of Intangible Heritage—the Community Archives Project	Adi Portughies BGU
7	A web and a mobile application to explore the cultural heritage in the Greece-Albania cross border region	Christos Bellos, Konstantinos Stefanou, Georgios Stergios, Thanios Kotsis, Georgia Tsamadia, Angeliki Kita, Persefoni Ntoulia, Vasileios Nitsiakos, Ioannis Fudos Lime Technology IKE, UOI, Public Central Library of Konitsa
78	Exploring the potential of a value-based participatory systems design approach for Cultural Heritage Preservation	Pieter De Vries TUDELFT
15	Computer aided design for the preservation of cultural heritage: the case of Mavrogiorgiannika in Kythera, Greece	Anastasia Vythoulka, Ekaterini Delegou, Antonia Moropoulou NTUA
21	Russian Modernism: A magnet for cultural tourism in Moscow	Ismini Kriari PANTEION
34	Smart cultural and political narratives in urban and peri-urban landscape	Aikaterini Chelidoni, Konstantinos Moraitis Arsis Architects', NTUA
35	Cretan cultural landscapes: using virtual reality to promote the marine and mountainous environment of Mirabello. The experience of the research project DIATOPO in Crete	Nikos Papadopoulos, Katerina Konstantinou, Georgia Moschovi, Theotokis Theodoulou, Christina Tsigonaki, Gianluca Cantoro, Dimitrios Oikonomou IMS-FORTH, PANTEION, Ministry of Culture and Tourism, UOC, Italian National Research Council
147	Design and Evaluation: Forming a New Architectural Pedagogy for Historical Urban Landscapes	Nikolaos Patsavos, Angelos Papageorgiou, Carolos Galanos UOI
148	Reflecting on Cultural Heritage before rebranding the world through culture	Kostas Theologou NTUA
164	Mind the Map! Accessibility meets culture	Giorgos Mikrou Mind the Map



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TMM_CH 2021 Proceedings

In numbers, 310 papers were submitted at the TMM-CH platform and, after peer review and revision, 124 were accepted, equivalent to a 40% rate of acceptance.

Special Book Series

The interdisciplinarity in the preservation of Cultural Heritage implies a holistic documentation with fusion of the various disciplines' data on 3D models and estimates via computer aided design either the preservation state and integrity of materials and structures, or the restoration of the authentic architecture. In parallel, new technologies are used to enhance and communicate the exploitation of cultural and natural assets, providing through tourism external economies to sustain local and regional development. Hence the "digital Heritage" papers, integrating all aspects as above will be published in:

- Springer Proceedings in Communications in Computer and Information Science CCIS - Transdisciplinary Multispectral Modeling and Cooperation for the Preservation of Cultural Heritage
- Springer Proceedings in Lecture Notes in Computer Science LNCS - Transdisciplinary Multispectral Modeling and Cooperation for the Preservation of Cultural Heritage - Communication and Information

More specific scientific papers, which are not relevant to the above framework, will be published in Special Book Series and Scientific Journals. More specifically:

- Springer Proceedings in Materials - Advanced Non Destructive and Structural Techniques for Diagnosis, Redesign and Health Monitoring for the Preservation of Cultural Heritage

Journals

- Developments in the Built Environment - Special Issue on Monitoring and Assessment for the Sustainable Preservation of the Built Environment
- Heritage - Special issue on Transdisciplinary Multispectral Modelling and Cooperation for the Preservation of Cultural Heritage
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