

SPECIAL ISSUE

Essays in Transdisciplinary Multispectral Modelling and Cooperation for the Preservation of Cultural Heritage

Editors:

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The following seven (7) papers are peer reviewed selected presentations to the 3rd International Conference TMM-CH “Transdisciplinary Multispectral Modelling and Cooperation for the Preservation of Cultural Heritage - Recapturing the World in Conflict through Culture promoting mutual understanding and Peace” which form a special issue of the SCIENTIFIC CULTURE (2023), Vol.9, No.2.

- Peace building in Cyprus through the preservation of endangered heritage: In-situ and laboratory characterization of materials from the Panagia Apsinthiotissa Monastery, I. Rogiros & I. Ioannou
- Surface treatments for the protection of monuments built of calcitic materials, E. I. Pavlaku, C. LEMONIA, E. ZOUVANI, C. A. PARASKEVA & P. G. KOUTSOUKOS
- The Impact of Environment on Cultural Relics, H. Pu & X. Wang
- Synthesis of encapsulated healing agents and integration in cultural heritage repair mortars for enhancing their healing capacity, S. Papaioannou, M. Amenta, V. Kilikoglou, D. Gournis & I. Karatasios
- Determining rockfall hazard and risk in historical sites, O. Mavrouli
- Parameters of microstructure and micromechanical properties as evaluation criteria for compliant and performant paper maintenance, P. Mavrantonis & L. Zoumpoulakis
- A simple green strategy to produce a nanocomposite with consolidation and hydrophobic ability to calcareous substrates, A. Kotsoni, S. Lagkadinou, D. Stefanakis, I. Karapanagiotis & P. Maravelaki

Brief Editorial

Selected presentations to the 3rd International Conference TMM-CH

“Transdisciplinary Multispectral Modelling and Cooperation for the Preservation of Cultural Heritage - Recapturing the World in Conflict through Culture promoting mutual understanding and Peace”

20-23 March 2023, Eugenides Foundation, Athens, Greece

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 competence from the scientific fields of architecture, civil engineering, surveying engineering, materials science and engineering, information technology and archaeology, as well as heritage professionals on restoration and conservation, stakeholders, industry representatives and policy makers.

The combined utilization of digital documentation technologies with innovative analytical and non-destructive techniques, numerical, computational and 3D techniques, archaeometric and archaeogene methods, supports the creation of a transdisciplinary multispectral modeling towards the sustainable preservation of cultural heritage. Innovation is enhancing and revealing a critical dimension of the preservation of cultural heritage along with social participation and communication, and supporting peace through culture.

These innovative aspects were enhanced and revealed by the 3rd International TMM-CH Conference on “Transdisciplinary Multispectral Modelling and Cooperation for the Preservation of Cultural Heritage - Recapturing the World in Conflict through Culture promoting mutual understanding and Peace” on 20-23 March 2023 in Athens, Greece.

The Conference was organised by the National Technical University of Athens in cooperation with the Technical Chamber of Greece, under the patronage of H.E. the President of the Hellenic Republic, Ms Katerina Sakellaropoulou, with benedictions bestowed by His All Holiness, Ecumenical Patriarch, Bartholomew I of Constantinople, and His Beatitude Archbishop Hieronymus II of Athens and All Greece.

Distinguished scientists and representatives of the National Geographic Society, the Cultural Heritage Finance Alliance, the International Council of Monuments and Sites ICOMOS, the Organization of World Heritage Cities OWHC, the European Society for Engineering Education SEFI, the European Construction Technology Platform ECTP, the International Federation of Surveyors FIG, the International Committee CIPA Heritage Documentation, the World Monuments Fund, AHEPA Hellas and other major International and European Organizations, Associations, networks Universities and Research Centers in the field of cultural heritage preservation, participated in the International Steering and Scientific Committees.

The 3rd TMM-CH Conference was highly expected and attracted researchers from all over the world. It was held with great success, with the physical presence of over 500 delegates and online attendance of 1.700 delegates in real time for the Scientific Sessions and approximately 50.000 delegates for the Scientific Panels, with 2-3 million visibility at international level though livestreaming - BCI Media Toronto.

416 scientific papers were submitted on the TMM-CH platform and after peer review and revision, 163 were accepted, with an acceptance rate of 39%. The scientific papers were presented within 13 thematic scientific sessions, submitted by 487 authors from all 5 continents. Related 13 thematic panel discussions were held with the participation of 142 panelists adjoining Science and Innovation with Policy Making, Industry and Society. Accepted papers are published in Special Book Series and distinguished Scientific Journals, 7 of them in the Special Issue of the Journal of Scientific Culture, which is an honor for the International Scientific Committee of TMM-CH. This effort was accomplished with the cooperation of the Chief Editor and editors of Scientific Culture, the contribution of whom we highly appreciate and acknowledge, Prof. Ioannis Liritzis, above all.

At the 1st and the 2nd TMM_CH Conferences, which were held with great success in October 2018 and December 2021 respectively at the Eugenides Foundation in Athens, with the presence of 350/650 delegates from 22/33 countries from all continents, and over five thousand viewers the emblematic rehabilitation of the Holy Aedicule of the Holy Sepulchre in Jerusalem was presented as an exemplary application, in the field of monuments' protection, of interdisciplinary and multispectral collaboration, as an outcome of innovation, not only on Research, but in the implementation process as well, with emphasis on technological advancements, not only intersecting all the scientific fields of engineers and natural scientists, but also initiating an ongoing dialogue with humanities, such as Archaeology, Theology, Sociology, Diplomacy and Tourism. Innovative knowledge transfer through practice and education is continuing the venture for the rehabilitation projects in the Holy Sepulchre Church, adjoining the National Technical University of Athens and La Sapienza University of Rome with Bezalel Academy of Science and Arts in Jerusalem, in cooperation with Israeli Antiquities Authority, through the Erasmus+ Strategic Alliance EDICULA "Educational Digital Innovative Cultural Heritage related Learning Alliance".

Further to the achievements of the two previous Conferences, 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 were attempted at the 3rd TMM-CH. 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 conflicts and climate change, energy, environment and socio-economic risks, the sustainable preservation of cultural heritage is addressing challenges through mutual understanding and international cooperation.

Guest editors

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