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NEWSLETTER
Project iPhotoCult

Intelligent advanced photonics tools for remote and/or on-site monitoring of cultural heritage monuments and artefacts

Funded by the European Union

iPHOTOCULT

THE PARTNERSHIP

Public and private subjects from 6 EU countries participate in the project iPhotoCult, which was approved within HORIZON-CL2-2023-HERITAGE-01-01 call

FORTH - Foundation for Research and Technology-Hellas (Coordinator)
CNR - National Research Council of Italy
CARTIF Foundation (ES)
INOE-National Institute for Research and Development in Optoelectronics (RO)
Tecreando B.V. (NL)
EAGLEprojects S.p.A. (IT)
UNIWA – University of West Attica (GR)
CCR Foundation - Centro Conservazione e Restauro "La Venaria Reale" (IT)
LSA GmbH – Laser Analytical Systems & Automation (DE)

Associated Partners
NGN - National Gallery – Museum of Alexandros Soutsos (EL)
CRRS-Consorzio delle Residenze Reali Sabaude,
AMTh-Archaeological Museum of Thessaloniki
HCYL - Consejería De Cultura y Turismo De La Junta De Castilla Y León
TECN - Technopolis, the Industrial Gas Museum of Athens

KICK-OFF MEETING

A good start is the best basis for successful enterprises. The ambitious work plan, challenging developments and crucial involvement stakeholder were discussed

iPhotoCult JOINS THE GREEN CLUSTER ON CULTURAL HERITAGE

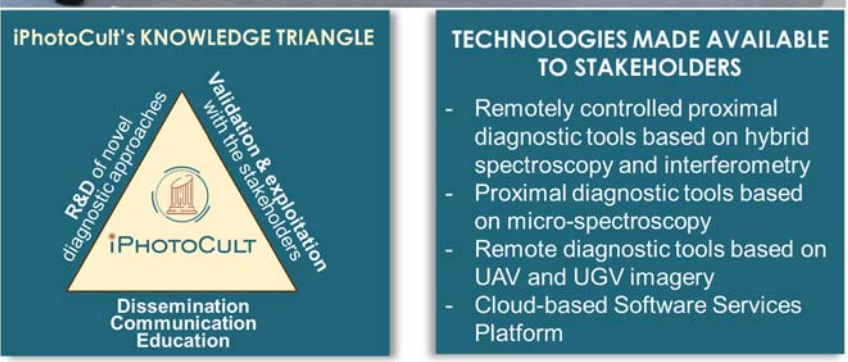
The synergistic collaboration among HE projects dedicated to CH, enhances the effectiveness of the individual projects and of the whole funding programme

R&D RESULTS

Just a few months after its launch, iPhotoCult is beginning to deliver its first results and share them with the scientific and professional community in the field of safeguard of CH

https://iphotocult.eu/en/

KICK-OFF MEETING



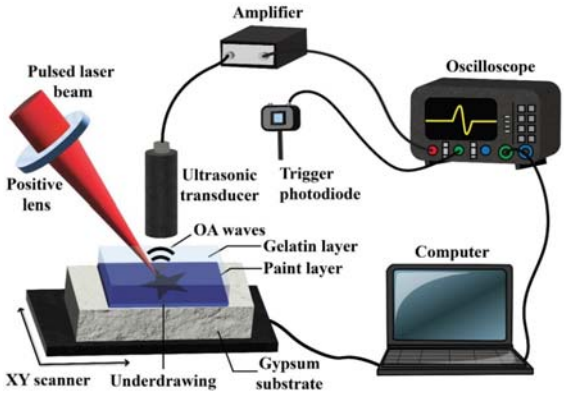
Between 3rd and 4th of July 2024, the kick-off meeting of the project iPhotoCult took place at the premises of the Foundation of Research and Technology - Hellas (FORTH) in Heraklion, Crete.
Aim of the project is to contribute to the sustainable management of Europe's cultural heritage (CH) artefacts and monuments by leveraging advanced, non-invasive and safe photonics and "smart" software technologies, which will contribute to the monitoring, diagnosis, restoration and preservation of CH. iPhotoCult is financed by the main funding program of the EU for research and innovation "Horizon Europe". The consortium consists of 14 partners from institutions and organizations of research, technology, and safeguard of CH.
In the framework of the kick-off meeting, which was joined by all the partners and the project officer on behalf of the European Commission, an overview of the project and its main objectives were discussed. The principles on which iPhotoCult was conceived, organizational aspects, and maximising the impact representend the main themes of the debate. The need to establish and extend effective exchanges with the stakeholders even beyond the partnership was clearly pointed out. Moreover, the interaction possibilities with other funded projects and initiatives within the Green Cluster on Cultural Heritage, a collective effort to protect cultural heritage monuments from the effects of climate change, were discussed.

iPhotoCult JOINS THE GREEN CLUSTER OF CULTURAL HERITAGE

On November 18, 2024, iPhotoCult participated at the introductory online meeting of the Green Cluster of Cultural Heritage. The overall goal is to support transdisciplinary joint efforts of researchers to develop sustainable preservation and adaptation plans, and to bring community involvement and inclusiveness to the forefront of large collaborative research projects funded by the EU. The long-term outcome will be the creation of a sustainable cultural heritage research ecosystem.
This event was organized by the REA European Research Executive Agency, established by the European Commission and included the EU projects ARGUS, ChemiNova and NERITES under the same Horizon Europe HORIZON-CL2-2023-HERITAGE-01-01 call for ''*Advanced technologies for remote monitoring of heritage monuments and artefacts*''.
At the online meeting, an overview of the Commission's policy priorities was presented as well as detailed descriptions by each project coordinator concerning the basic ideas, proposed solutions, and specific challenges. iPhotoCult pointed out the vision of ''diagnostic tools and technologies in the service of the future of our past'' to preserve and access all CH assets and information across time and space. Specifically, it was underlined that CH items are distributed and diverse and that within the current multi-crisis environment, a holistic strategy for their protection and conservation requires complete data. Therefore, effective and concerted strategies of CH preservation, research and training are needed in FP10. During the open discussion focusing on future goals and collaborative actions, iPhotoCult highlighted its contribution to the sustainable management of Europe's CH by offering advanced safe and non-invasive photonics tools and technologies and intelligent data processing, visualization and prediction software services platform capable of proximal and/or remote monitoring and diagnosis, so as to ensure efficient adaptation of sustainable management plans and establish effective conservation strategies.

R&D RESULTS

Photoacoustic tomography allows non-contact detection of underdrawing in paintings



An innovative approach to the microstratigraphic tomography of paint layers based on the laser induced photoacoustic effect is under investigation at FORTH-IESL. Important advances have been recently achieved within iPhotoCult on the optimization of such a technique, which was proved effective in revealing underdrawing beneath relatively tick paint layers. This result has been published in a paper entitled "Non-invasive optoacoustic imaging for in-depth cultural heritage diagnostics' and authored by G. J. Tserevelakis, E. Pirgianaki, K. Melessanaki, G. Zacharakis and C. Fotakis (Photonics 2024, 11, 902, https://doi.org/10.3390/photonics11100902).

Efficient and controlled Raman spectroscopy of mural paintings

CNR-IFAC is dedicating efforts in developing, validating, and exploiting innovative laser based systems and methods for compositional diagnostics of CH. During the early months of iPhotoCult it has developed a portable Raman device (exc. 1064 nm) and carried out the first double wavelenght thermally controlled Raman spectroscopy of mural paintings. This instrument represents a subsystem of the multianalytical hybrid prototype under development within the projects.

Besides a systematic laboratory study, optimization and extensive application were carried out on the most celebrated masterpiece by Ambrogio Lorenzetti (1290-1348), known as the Allegory and Effects of Good and Bad Government (1338-1339). The technical details of this work have been reported in a paper entitled "Thermally optimised Raman spectroscopy for safe analysis of wall paintings and application to Lorenzetti's masterpiece", which has recently been submitted for publication in Journal of Raman Spectroscopy.

Contact us:

info@iphotocult.eu

https://iphotocult.eu/en/

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