

PRESS RELEASE

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L'Ultima Cena Observed by High Frequency Electromagnetic Waves

The preservation of historical art treasures requires not only restorers, but also research and the resulting high-tech solutions. This is especially true for world-famous works of art such as »L'Ultima Cena« by Leonardo da Vinci, which pose additional challenges to museums due to their age. The Fraunhofer ITWM now supports a new approach to restoration.

On the initiative of Dr Michela Palazzo, the Director of the Museo del Cenacolo Vinciano and Dr Fabio Aramini of the Istituto Centrale per il Restauro, and the intensive commitment of Dr Lorenza Dall'Aglio of the Museo del Cenacolo Vinciano and Dr. Kaori Fukunaga from the National Institute of Information and Communications Technology (NICT) in Japan, one of the most famous murals in the world, the Last Supper by Leonardo Da Vinci, could be examined using millimeter and terahertz waves.

Also on board: the team of Dr. Fabian Friederich from the Fraunhofer Institute for Industrial Mathematics ITWM in Germany. NICT leads the use of terahertz measurement in cultural heritage and has investigated various museum objects as a collaboration with the Istituto di Fisica Applicata »Nello Carrara« of the National Research Council (IFAC-CNR).

Millimeter Waves Increase Penetration Depth

In addition, the millimeter wave technology of the Fraunhofer ITWM enables the observation of structural features below the wall painting due to the greater penetration depth. The use of these nondestructive technologies, for example, provides information on layer structure of the wall itself in addition to previous works by taking small samples for cross-section observation.

Fraunhofer ITWM and 19 other Fraunhofer Institutes are currently involved in the research project »Cultural heritage at risk – effects of climate change, opportunities of digitization«, which is funded by the Fraunhofer-Gesellschaft with 1.9 million euros.

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Investigation of »The last supper« (Cenacolo Vinciano, Polo Museale Regionale della Lombardia, Ministero per i beni e la attività culturali)

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About the Fraunhofer Institute for Industrial Mathematics ITWM

The Fraunhofer Institute for Industrial Mathematics ITWM in Kaiserslautern is one of the largest research institutes for industrial mathematics worldwide. We see our task in further developing mathematics as a key technology and providing innovative impetus. Our focus is on the implementation of mathematical methods and technology in application projects and their further development in research projects. The close cooperation with partners from industry guarantees the high practical relevance of our work.

Their integral components are consulting, implementation and support in the application of high-performance computer technology and the provision of tailor-made software solutions. Our various competencies address a wide range of customers: automotive industry, mechanical engineering, textile industry, energy and finance. This also benefits from our good networking, for example in the High performance center "Simulation- and software-based innovation".