

APACHE

*Active & intelligent PACKaging materials and display cases
as a tool for preventive conservation of Cultural HERitage.*

Degradation of movable, tangible and indoor cultural heritage can be significantly increased by disadvantageous and unstable climate conditions, light, and intrinsic or external pollution. Preventive conservation aims to minimize aging and degradation by optimizing, among others, display and storage solutions. In the recent years, several active and intelligent packaging materials have been developed and put to use, especially in food industries. However, these materials are short-term solutions that cannot be easily adapted for cultural heritage, where long-term stability is mandatory. In the APACHE proposal, the novel combination of active novel packaging materials based on materials modelling, with sensors and wireless sensor technologies (WST) provides smart, low-cost easy-to-deploy systems for storage and exhibition of cultural heritage objects. One of the main goal of APACHE is to dramatically reduce the costs of mechanical climate control and monitoring systems, by developing and customising smart and affordable novel materials, based on material science advancements and discrete and continuum modelling.

The training organized by the European project APACHE and the musée du quai Branly - Jacques Chirac aims to explore the consortium's activities. It seeks to transfer knowledge generated during the development of the project within academic, professional potential users and industrial domains, in addition to upskill key stakeholders and staff on the use of the novel materials/tools/solutions applied to the preventive conservation of cultural heritage.

THE TRAINING FOCUSES ON THREE ESSENTIAL SECTIONS:

- Lectures and presentations on the theoretical, research and implementation aspects of the novel materials and solutions
- Five practical workshops around the application methodologies and the use of some developed technologies
- A final open debate about the new materials, feedback and sharing of experience after the practical activities

Organisation:

Antonio Mirabile - APACHE Project
Eléonore Kissel - Musée du quai Branly - Jacques Chirac

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MUSÉE DU QUAI BRANLY
JACQUES CHIRAC

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 814496



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FIRST DAY

09:00 – 09:10: Greetings

Preventive conservation: research and practicalities

CHAIR: ÉLÉONORE KISSEL,
musée du quai Branly - Jacques Chirac

09:10 – 09:30 Isella Vicini:

Cultural Heritage: funding opportunities in the new framework programme for research and innovation, Horizon Europe (2021-2027)

09:30 – 09:50 Antonio Mirabile:

Dissemination and public trainings approach

09:50 – 10:10 Fabrice Sauvagnargues:

Preventive conservation in practice at the musée du quai Branly - Jacques Chirac

10:10 – 10:30 Matija Strlic:

Modelling preventive conservation outcomes

10:30 – 10:45 Q&A

10:45 – 11:00 Coffee break

From micro to macro: materials and their interaction with the environment

CHAIR: LOÏC BERTRAND,
PPSM laboratory, ENS Paris-Saclay,
CNRS, Université Paris-Saclay

11:00 – 11:20 Oscar Chiantore:

Indoor air quality in museums showcases: materials interactions, off-gasing, impacts

11:20 – 11:40 Ida Kraševc:

Monitoring protocols for pollutants in museums

11:40 – 12:00 Aysenur Iscen and Nancy C. Forero-Martinez:

Acrylic paints under the computational microscope

12:00 – 12:20 Alex Zabeo:

Apache Decision Support System supporting preventive conservation actions

12:20 – 12:40 Q&A

12:40 – 14:00 Lunch break

Materials developed in the APACHE project to influence the environment

CHAIR: ANNE-LAURENCE DUPONT,
Centre de recherche sur la conservation des collections (CRCC)

14:00 – 14:20 Piero Baglioni:

Innovative "green" gels as new pollutant absorbers in Preventive Conservation

14:20 – 14:40 Gabriella Di Carlo:

Multifunctional materials based on chitosan for the removal of degrading species in museum storage/display environments

14:40 – 15:00 Romain Bordes:

Development of silica-based composites for the capture of gaseous pollutants in museums and archives

15:00 – 15:20 Dimitrios Dragatogiannis:

Humidity sorption study using PVA membranes and Super Absorbent Polymers

15:20 – 15:35 Q&A

15:35 – 15:50 Coffee break

Sensors and solutions to describe and interact with the environment

CHAIR: NICOLAS WILKIE-CHANCELLIER,
Laboratoire SATIE, université CY

15:50 – 16:10 Daniele M. Trucchi:

Sensitive and selective electrochemical sensors for monitoring of museums crate atmosphere

16:10 – 16:30 Costas Galiotis:

Roll-to-roll graphene transfer as an effective tool for the protection of artworks

16:30 – 16:50 Dinesh R. Gawade:

A battery-less NFC sensor transponder for museum artefact monitoring

16:50 – 17:10 Manfred Anders and Steffen Ziemann:

Converting conventional passive into novel active archive boxes

17:10 – 17:30 Q&A

SECOND DAY

09:30 – 11:00

First cycle of practical activities

Manfred Anders and Steffen Ziemann:

Integration and practicability of regulators and sensing devices in archive boxes

Dinesh R. Gawade:

A battery-less NFC sensor transponder for museum artifact monitoring. Demonstration

Piero Baglioni and David Chelazzi:

Innovative "green" gels as new pollutant absorbers in Preventive Conservation

Alex Zabeo:

APACHE Decision Support System application in real collections case studies

Josep Grau-Bove and Himantha Cooray:

Using a decision making-tool to select the best storage enclosure.

11:00 – 11:15 Coffee break

11:15 – 12:45

Second cycle of practical activities

12:45 – 14:00 Lunch break

14:00 – 15:30

Third cycle of practical activities

15:30 – 15:45 Coffee break

15:45 – 17:15

Open debate about the new materials, feedback and sharing of experience after the practical activities

