Name: Maria Catrambone
Position: Senior Researcher / Conservation Scientist
Institution: National Research Council of Italy – Institute of Heritage Science (CNR–ISPC)

Research Areas

- Conservation science of cultural heritage
- Indoor Air Quality (IAQ) in museum, historical, and archival environments
- Analytical chemistry applied to cultural heritage and environmental studies
- Non-invasive and multi-analytical diagnostics of cultural heritage materials
- Characterisation of ceramic materials in museum collections
- Investigation of pigments in manuscripts and historical materials
- Interaction between environment, materials, and degradation processes

---

Scientific Profile

Researcher at the Institute of Heritage Science (ISPC–CNR), holding a degree in Chemistry and with extensive experience in analytical chemistry applied to environmental studies and the conservation science of cultural heritage. Her scientific career initially developed in the field of atmospheric pollution and subsequently evolved towards the application of analytical methodologies to the study of cultural heritage materials and conservation environments.

Research Activities

Until 2019, her research focused on the monitoring and chemical characterisation of atmospheric pollution in urban, rural, and industrial contexts through national and international field measurement campaigns. These studies addressed the chemical composition of atmospheric aerosols, their size distribution and morphology, and the identification of major emission sources, contributing to European and international projects, technical reports, and scientific publications.

Since 2020, at ISPC–CNR, her activity has been oriented towards conservation science, with particular emphasis on the study of material degradation processes, the evaluation of conservation treatments, and the development of integrated monitoring systems for in situ surfaces in both indoor and outdoor environments.

Expertise

Indoor Air Quality and Preventive Conservation

She has established and developed a dedicated research line on Indoor Air Quality in museums, historical, and archival environments, aimed at supporting preventive conservation strategies.

Activities include the design and implementation of monitoring campaigns for the characterisation of gaseous and particulate pollutants in exhibition galleries, storage areas, and museum display cases.

Attention is devoted to pollutants critical for the conservation of cultural heritage materials, such as acetic and formic acids, using diffusive sampling techniques and validated analytical methodologies. Research also addresses the interaction between outdoor-derived pollutants and those generated indoors, as well as emissions from display and furnishing materials (showcases, furniture, wood, and plastics) and their impact on preserved objects.

Non-Invasive Diagnostics of Cultural Heritage Materials

She conducts non-invasive characterisation of ceramic materials from museum collections for provenance and production technology studies, as well as the investigation of pigments in manuscripts and historical artefacts through multi-analytical diagnostic approaches, with particular attention to the relationship between conservation environments and degradation processes. She participates in diagnostic campaigns within the E-RIHS (European Research Infrastructure for Heritage Science) mobile laboratory, supporting conservation interventions and preventive conservation studies in museum and monumental contexts, and contributes to national research and innovation projects.