

Daniela Comelli (June 30, 1974)

EDUCATION:

Master degree in Electronic Engineering in 1999 at Politecnico di Milano, Italy.

Ph.D. in Physics in 2002 at Politecnico di Milano, Italy.

PROFESSIONAL CAREER:

2004-2011: Permanent researcher at the Polytechnic University of Milan.

2011-present: Associate Professor at the Polytechnic University of Milan.

RESEARCH ACTIVITIES:

Since 2010, Daniela Comelli has been leading the **ArtIS (Imaging and Spectroscopy for Art)** research group at the Department of Physics of Politecnico di Milano - <https://www.fisi.polimi.it/artislab/index.html>. The research focuses on the use of photonics-based methods and instrumentation for the study of materials and objects relevant in the heritage science field. The research activity includes two main themes: (i) the development of innovative spectroscopy and imaging spectroscopy instrumentation for non-invasive examination of artworks using techniques that exploit the interaction of light with materials; these include time-resolved photoluminescence imaging and micro-imaging, time-resolved hyperspectral photoluminescence imaging, Raman spectroscopy (including imaging and mapping techniques), and hyperspectral reflectance imaging;

(ii) the study of the photo-physical properties of organic and inorganic materials relevant to the cultural heritage sector. The research theme aims to understand the stability and reactivity of pictorial materials to identify possible degradation processes.

Over the past 10 years (2013-2022), Daniela Comelli has been author of 67 scientific publications, including 25 as the senior author (22 scientific articles, 1 book chapter, and 2 conference proceedings), and 7 as the first author or corresponding author (6 scientific articles and 1 conference proceeding).

As part of the research activities in her laboratory, Daniela Comelli has supervised 4 Ph.D. students/post-doc researchers, 9 Master's thesis students in Physical Engineering, and approximately 30 undergraduate thesis students in Physical Engineering.

In the last 10 years, the ArtIS group's leadership has been marked by numerous national and international collaborations, including the Metropolitan Museum of Art's Scientific Research Department (New York, US), the Science Department of the Getty Conservation Institute, (Los Angeles, US), the C2RMF (Center And Search Restoration Musées De France at Palais du Louvre, Paris, France), the research group led by Prof. Maria J. Melo at the Faculty of Sciences and Technology - NOVA University of Lisbon (Portugal), the research group led by Marine Cotte at the European Synchrotron Radiation Facility (ESRF), Grenoble.

SCIENTIFIC RESPONSIBILITY FOR INTERNATIONAL AND NATIONAL RESEARCH PROJECTS:

In the last 10 years, Daniela Comelli has been responsible for the following funded projects:

- **2013-15:** Local coordinator (research unit at the Polytechnic University of Milan – Department of Physics) for the project "**Objects and Materials of Egyptian Archaeological Heritage: Portable Spectroscopy and Imaging**" under the Bilateral Scientific and Technological Research Projects of Great Relevance. The project, carried out in collaboration with Fayoum University (Egyptian partner), was funded by MAECI, the Ministry of Foreign Affairs at that time.

- **2014-17:** Local coordinator (research unit at the Polytechnic University of Milan – Department of Physics) for the project "**Induced decay and aging mechanisms in paintings: focus on interactions between lead and zinc white and organic material (LeadART)**" funded by MUR (formerly MIUR) as part of the JPI - JHEP JOINT PILOT TRANSNATIONAL CALL for Joint Research Projects on Cultural Heritage. <https://www.era-learn.eu/network-information/networks/jpi-cultural-heritage/jpi-jhep-pilot-call>

- **2019-21:** Local coordinator (research unit at the Polytechnic University of Milan – Department of Physics) for the project "**MAPPING: Novel methods and devices for the chemical MAPPING of Paintings through Photoluminescence imaging**" funded by the Italo-French University within the Galileo 2019 call (project code: G19-74).

- **2020-22:** Local coordinator (research unit at the Polytechnic University of Milan – Department of Physics) for the project "**CARLA - The European Photonics CAREer LAunch Path**" funded by the European Community under the H2020-ICT-2018-2020 call (contract number 871457) <https://cordis.europa.eu/project/id/871457> - <https://carlahub.eu/>.

- **2022 - ongoing:** Local coordinator (research unit at the Polytechnic University of Milan – Department of Physics) for the project "**Historical Material Bag**" funded by the European Community (HG-172 proposal, pilot project for new access models implemented with the support of the Horizon 2020 research and innovation program of the European Union, grant agreement no. 870313). <https://www.esrf.fr/BAG/HG172>.

- **2023 - ongoing:** Local coordinator (research unit at the Polytechnic University of Milan – Department of Physics) for the project "**REDiscovering madder colors: Science & Art for the preservation and creation of cultural heritage**" (REDiscover 2022.02909.PTDC) funded by the Portuguese Foundation for Science and Technology (FCT).

SCIENTIFIC PUBLICATIONS:

Daniela Comelli is co-author of **131 documents** indexed in **Scopus**:

h-index=27, 2191 citations, <https://www.scopus.com/authid/detail.uri?authorId=23003392000>):

PATENT OWNERSHIP:

Daniela Comelli is a co-author of 2 patents:

- CUBEDDU R, G. VALENTINI, P. TARONI, D. COMELLI, L. TONIOLO (2002). Analysis of artworks using fluorescence spectroscopy for imaging - <https://hdl.handle.net/11311/533252>. The participation percentage in the patent is 20%. The patent was filed in Italy (MI2002A001361).
- VALENTINI G, D.COMELLI, A.BASSI (2010). LED lighting device, particularly for street lighting, and method

for its design. The participation percentage in the patent is 40%. The patent was filed in Italy (MI2010A002431) and subsequently licensed to IBT Lighting S.p.A. (Novara), which used it in lighting products installed nationally and internationally.

ORGANIZATION OF SCIENTIFIC CONFERENCES IN ITALY AND ABROAD:

In the past 10 years, Daniela Comelli has been a member of the organizing committee for various conferences/symposia, as listed below:

- Member of the organizing committee (Programme Committee) for the SPIE Optical Metrology conference
- O3A: Optics for Arts, Architecture, and Archaeology in the years 2019-2021-2023.
- Member of the organizing committee for the ICOP 2020 conference, Italian Conference on Optics and Photonics (September 8-11, 2020, Rome), particularly for the organization of two sessions on Photonics for Cultural Heritage.
- Member of the organizing committee for the symposium SB11: Photo/Electrical Phenomena at the Interface with Living Cells and Bacteria within the 2021 MRS® Fall Meeting Symposia. November 29 – December 2, 2021, Boston (USA), and December 6-8, 2021, virtual event.
- Organizer of the GS_24 session: Photonics for Cultural Heritage at the CMD 30 – FISMAT 2023 conference (Milan, September 4-8, 2023).

Additionally, she has authored or co-authored over 50 communications (oral and poster) at international conferences and served as a session chair at various scientific meetings.

EDITING OR PARTICIPATION IN EDITORIAL BOARDS OF JOURNALS AND BOOKS:

Since February 2022, Daniela Comelli has been an editor of the journal The European Physical Journal - Plus (EPJ Plus) by Springer (<https://www.springer.com/journal/13360>).

Daniela Comelli has been a guest editor for two article collections:

- **"Advances in photonics for heritage science: developments, applications and case studies" for the EPJPlus journal** - <https://link.springer.com/article/10.1140/epjp/s13360-022-03317-y>. The collection consists of 17 scientific articles published in September 2022.
- **"Focus Issue on Photonics for Cultural Heritage: Technological Advances and Methodological Improvements" for the JPhys Photonics journal** (IOP Publishing) - <https://iopscience.iop.org/collections/jpphoton-230113-92>.

Daniela Comelli is co-editor, along with Prof. Maria J. Melo, Prof. Aldo Romani, and Dr. Austn Nevin, of the Springer book **"Molecular Luminescence in Cultural Heritage" (ongoing activity) published by SpringerNature.**