

Caliri Claudia – Short Curriculum

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Research

Dr. Claudia Caliri is a researcher in the area of X-ray spectrometry applied to the Cultural Heritage field. In November 2019 she started her activity at the Institute of Cultural Heritage Sciences of the National Research Council (ISPC-CNR) of Catania (Italy). Recently, she joined as member of the ISPC Institute Council. In 2012 Dr. Claudia Caliri graduated cum laude in Nuclear Physics at the University of Catania (Italy). In 2013, she worked per one year as staff-associate researcher at the Physic Laboratory of the Columbia University (New York City, USA) on the project entitled "X-ray measurements by CNT Stellarator, as well as on the development of a test of the cyclone electron toroidal principle Resonance Ion Source (ECRIS)".

In March 2017 she received the PhD in physics cum laude at the University of Catania (Italy). She carried out her research activity, during PhD and the following two years of postdoctoral fellowship, in the X-ray spectroscopy laboratory of the Institute of Cultural Heritage Sciences of the National Research Council (ISPC-CNR) and of the Southern National Laboratories of the National Institute of Nuclear Physics (LNS-INFN) of Catania (Italy). Her research activity aims to develop and to use portable instrumentation and advanced analytical methods of X-ray spectroscopy for the non-destructive characterization of cultural objects and archaeological materials. Her scientific skills concern the development of advanced portable techniques such as Macro and micro-XRF (MA-XRF and μ -XRF), Confocal XRF (CXRF), Full Field XRF (FF-XRF) and Grazing Emission XRF (GEXRF)).

Dr. Caliri Claudia employed these analytical techniques in numerous in situ measurement campaigns throughout Europe in collaboration with important museums such as the Egyptian Museum of Turin (Italy), the National Archaeological Museum of Athens (Greece), the National Museum of Capodimonte in Naples (Italy), Fitzwilliam Museum in Cambridge (United Kingdom) etc. In the years 2016-2019, she was involved in a total of 20 in situ campaigns, among which 5 campaigns she held a coordinating role. Even if to a lesser extent a part of her research activity is also aimed to develop analytical techniques based on the use of accelerated beams such as Full-Field Particle-Induced X-ray Emission (FF-PIXE) and Macro-Particle X-ray Emission (MA-PIXE), as well as to develop analytical procedures applied to Grazing Incidence XRF (GI-XRF) and Grazing Incidence Near X-Ray Absorption Near Edge Spectroscopy (GI-XANES) measurements based on synchrotron radiation. During her Postdoctoral research fellow (supported by INFN), she was a member of the MOLAB research committee for the INFN Cultural Heritage NETwork (CHNET) in the framework of the E-RIHS infrastructure. She was also a member of the INFN-LNS "Public Engagement" for scientific dissemination activities within the "third mission".

To date, Dr. Claudia Caliri is the co-author of 34 International Peer Review Papers (H-INDEX: 10 of Scopus) and in the period 2014-2021 she attended with 8 oral contributions as a speaker at International Conferences, 3 of which as invited talks. Dr. Claudia Caliri has held seminars, lectures and training camps focused on her research activity organized by universities and centers of excellence for national and international students. In addition, she was supervisor of master and bachelor degree theses. Finally, Dr. Claudia Caliri was a member of the local organizing committee of international conferences such as TECHNART 2015 and MA-XRF 2019 on the use of analytical methods for characterization of works of art.

Previous Job position

2017- 2019 - Postdoc position at the Istituto Nazionale di Fisica Nucleare - (INFN-LNS) (Catania, Italy) in the research field of the X-ray spectroscopy.

2017- 2018 - IAEA Postdoc position as Synchrotron Radiation Experiments Expert at Elettra Synchrotron (Trieste, Italy) – (position assigned but not accepted).

2013 - 2014 - Full time position as a staff-associate, Columbia University, Plasma Physic Laboratory, New York City, USA.

Academic Education

2017- PhD in Physic (cum laude), University of Catania, LNS- INFN, Italy. Thesis: “*A mobile XRF scanner for a real-time elemental imaging of painted artworks*”.

2012 - Master's degree in Nuclear Physics, 110/110 cum laude, University of Catania, INFN-LNS, Italy. Thesis: “*Development and Characterization of a pinhole-camera and X-rays Imaging emitted by a plasma generated by 3.75 GHz microwave*”.

Publication and contributions at international conferences

N. 40 International Peer Reviewed Papers and Book Chapter

H-INDEX: 14, 582 citations according by Scopus (consulted on 16.10.2023)

N. 17 Contributions as first author at international conferences (3 invited talks, 5 oral presentations, 9 posters)

N. 46 Contributions as co-author at international conferences (5 invited talks, 26 oral presentations, 15 posters)

N.5 Selected Peer reviewed publications

1. Romano, F.P., Puglia, E., Caliri, C. et al. Layout of ancient Greek papyri through lead-drawn ruling lines revealed by Macro X-Ray Fluorescence Imaging. Sci Rep 13, 6582 (2023). <https://doi.org/10.1038/s41598-023-33242-8>
2. M. Bicchieri, P. Biocca, C. Caliri, F.P. Romano (2021). Complementary MA-XRF and μ -Raman results on two Leonardo da Vinci drawings, X-Ray Spectrometry 50 (4), 401-409.
3. H.C. Santos, C. Caliri, L. Pappalardo, F. Rizzo, F.P. Romano (2021). MA-XRF and XRD analysis revealing a polychrome Centuripe vase, Journal of Archaeological Science: Reports 35, 102760
4. Romano, F.P., Caliri, C., Nicotra, P., Di Martino, S., Pappalardo, L., Rizzo, F. and Santos, H.C., 2017. Real-time elemental imaging of large dimension paintings with a novel mobile macro X-ray fluorescence (MA-XRF) scanning technique. Journal of Analytical Atomic Spectrometry, 32(4), pp.773-781.
5. Romano, F. P., Caliri, C., Cosentino, L., Gammino, S., Mascali, D., Pappalardo, L., Rizzo, F., Scharf, O., Santos, H. C. (2016). Micro X-ray Fluorescence Imaging in a Tabletop Full Field X-ray Fluorescence Instrument and in a Full Field-Particle Induced X-ray Emission End Station. Analytical Chemistry, 88(20), 9873-9880. **Publication selected as ACS Editors Choice.**

Catania, 16/10/2023