Art Diagnostics:

Low-Cost Revolution

Gmail by Google

Dear Dr Cosentino,

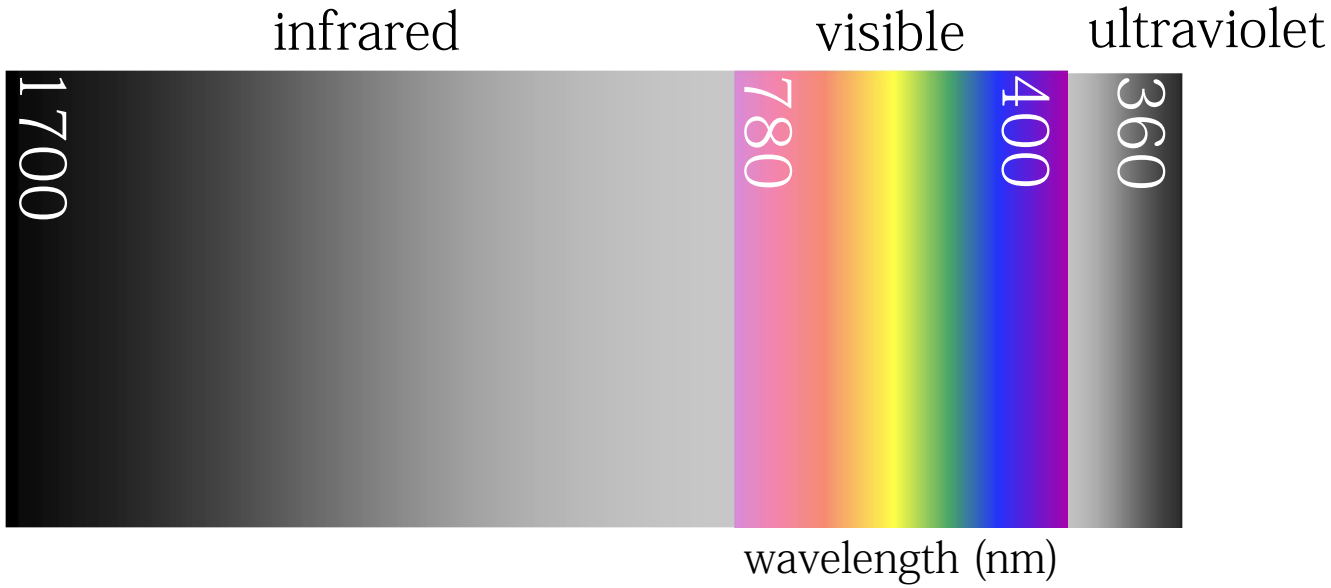
I am researching a watercolour portrait which appears to have a tiny sgraffito ownership signature along the fold of the sitter's dress. ....

Is there any way of checking to see how it was done? Would it be possible to reveal this with a macroscopic photograph?

I have no idea where to start with this and would be grateful for any help or advice. I live in the UK.

Scientific Examination of works of art

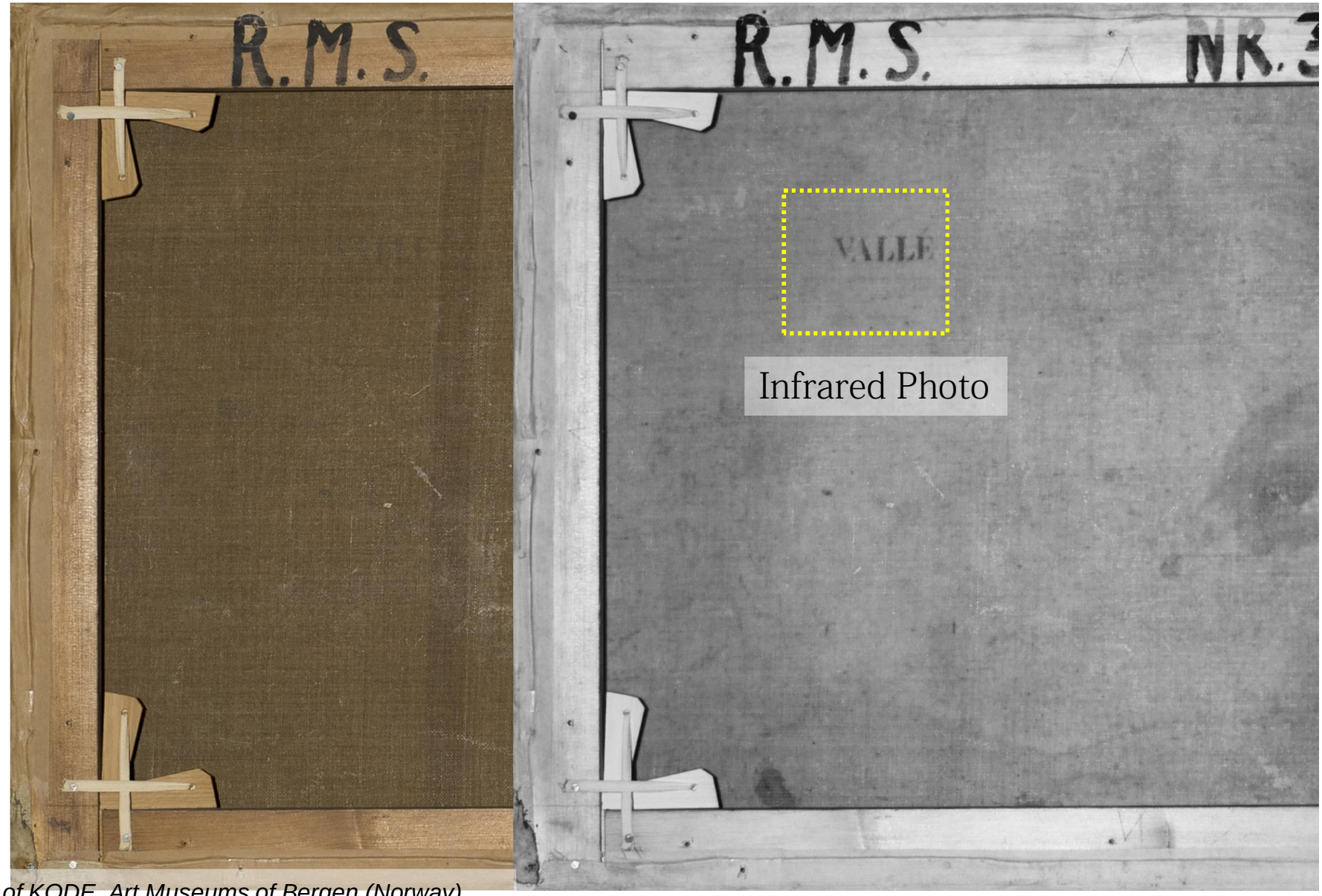
(Art Diagnostics,, Cultural Heritage Science, Conservation Science)



Information beyond the eyes

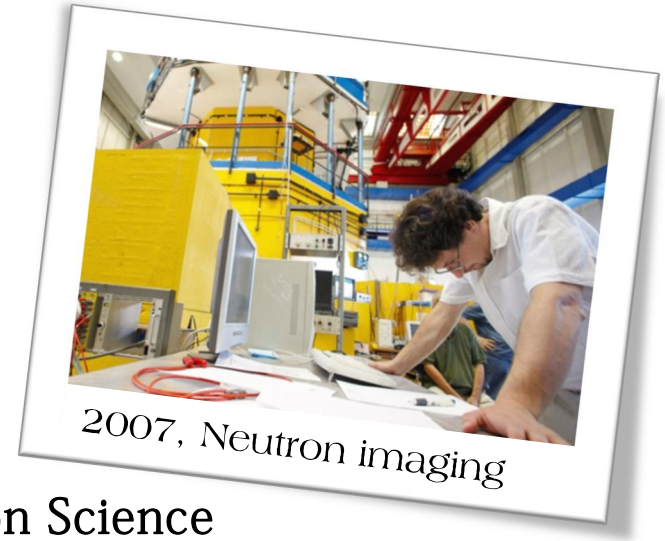
How it was made? who made it?

How should it be preserved?



Courtesy of KODE, Art Museums of Bergen (Norway)

2004, Raman spectroscopy



2007, Neutron imaging

Antonino Cosentino
PhD, Physicist

16 years in Conservation Science
2000, University of Catania, Italy
2005, EDITECH, Florence, Italy
2006, University of Perugia, Italy

2007, University of California, San Diego
2010, Metropolitan Museum, NY
2011, Pratt Institute, Brooklyn, NY
2012, CHSOS

2006, Atomic Force Microscopy

Knowledge - Open Arts Workshop
Feb 2016, Catania, Italy

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2010, Terahertz

CHSOS promotes innovative and affordable technologies for Art examination

Cultural Heritage Science Open Source

Academia,
Science,
Technology

Art Conservation

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CHSOS - studio


Viagrande, Sicily


CHSOS Studio


Sapienza Palace (18th century)

CHSOS – master plan

Mission

Promote
Innovative
&
Affordable
Technologies
for Art Examination

Cultural Heritage Science Open Source

Methods

- Develop
- Disseminate
- Publications
- Blog
- Art Examination
- Trainings

Outcomes

2013 Technical Photography

2014 Pano Infrared Reflectog.

2015 Multispectral Imaging

2016 Low-cost X-Radiography

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1st "The broom is still around"

2nd "Do not use a cannon to kill a mosquito"

4th "Everyday work is NOT LIKE Academic Research"

- maintenance
- return on investment
- adaptability

3rd "not fancy, but we can go places"

Technical Photography, TP

simple equipment.

Four filters and a digital camera

IRR (Infrared Reflectography)

IRF (IR Fluorescence)

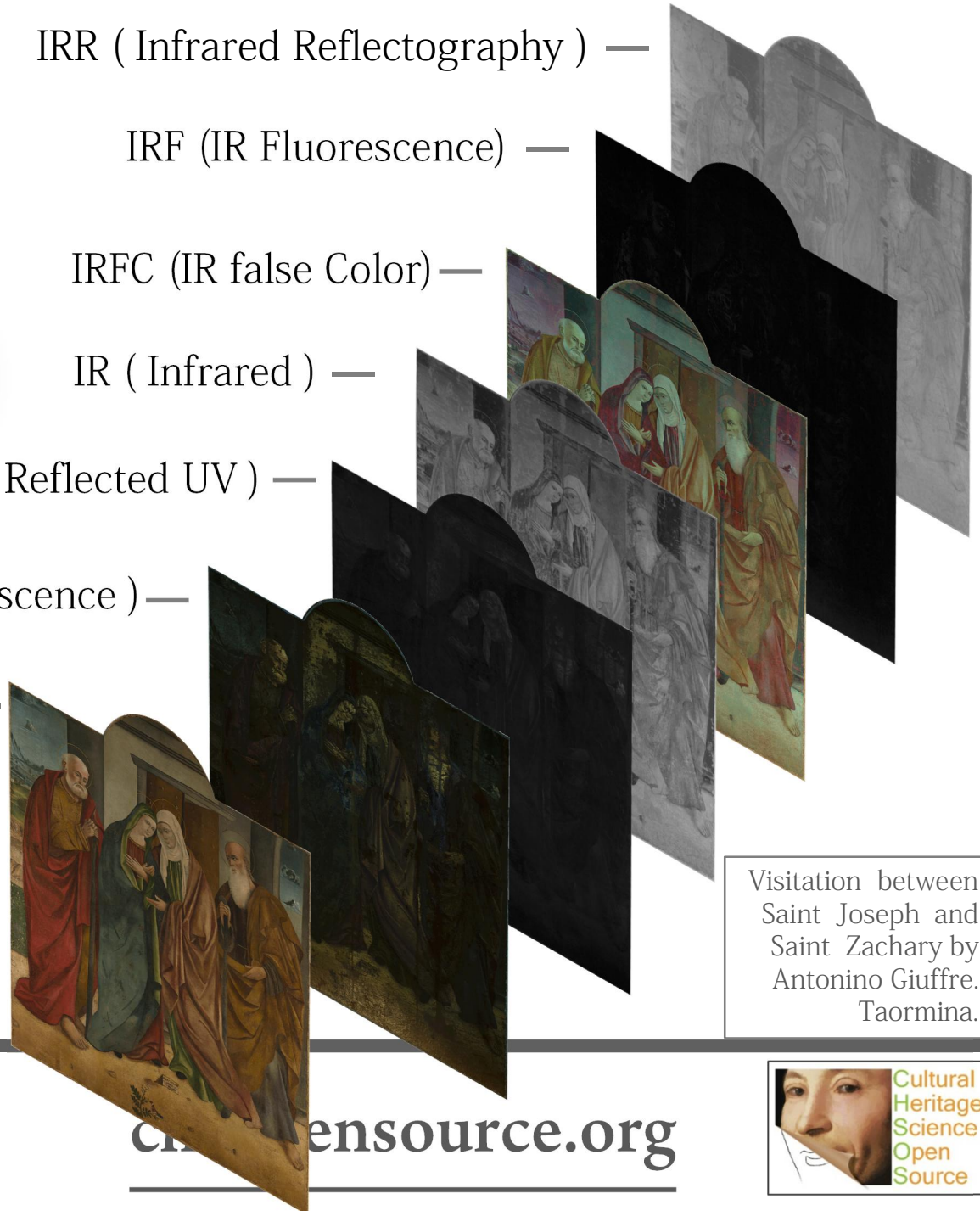
IRFC (IR false Color)

IR (Infrared)

UVR (Reflected UV)

UVF (UV Fluorescence)

VIS (Visible)



Visitation between Saint Joseph and Saint Zachary by Antonino Giuffre. Taormina.

A. Cosentino "Panoramic, Macro and Micro Multispectral Imaging: An Affordable System for Mapping Pigments on Artworks" Journal of Conservation and Museum Studies, 13(1): 6, 1 – 17, 2015

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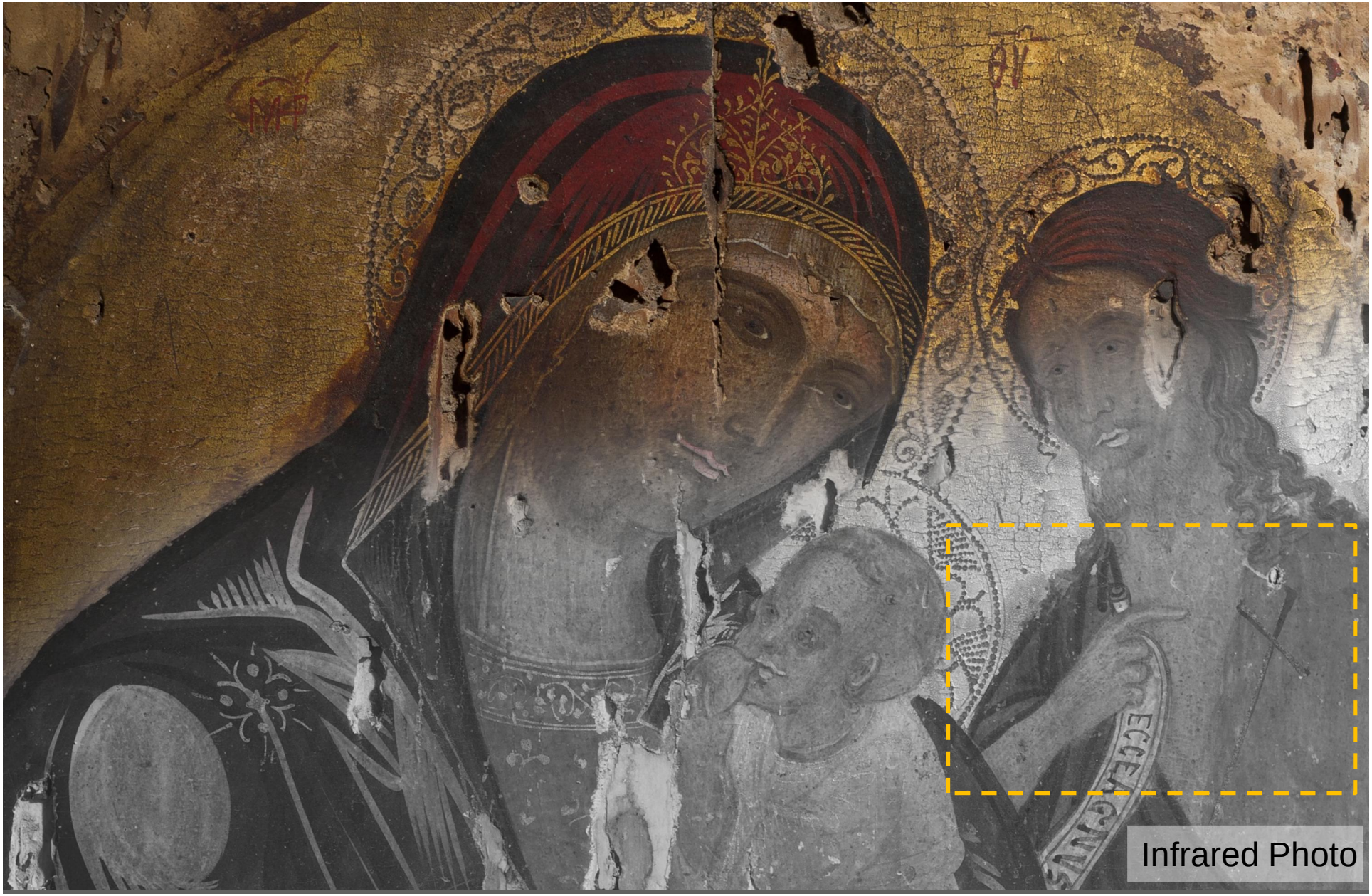

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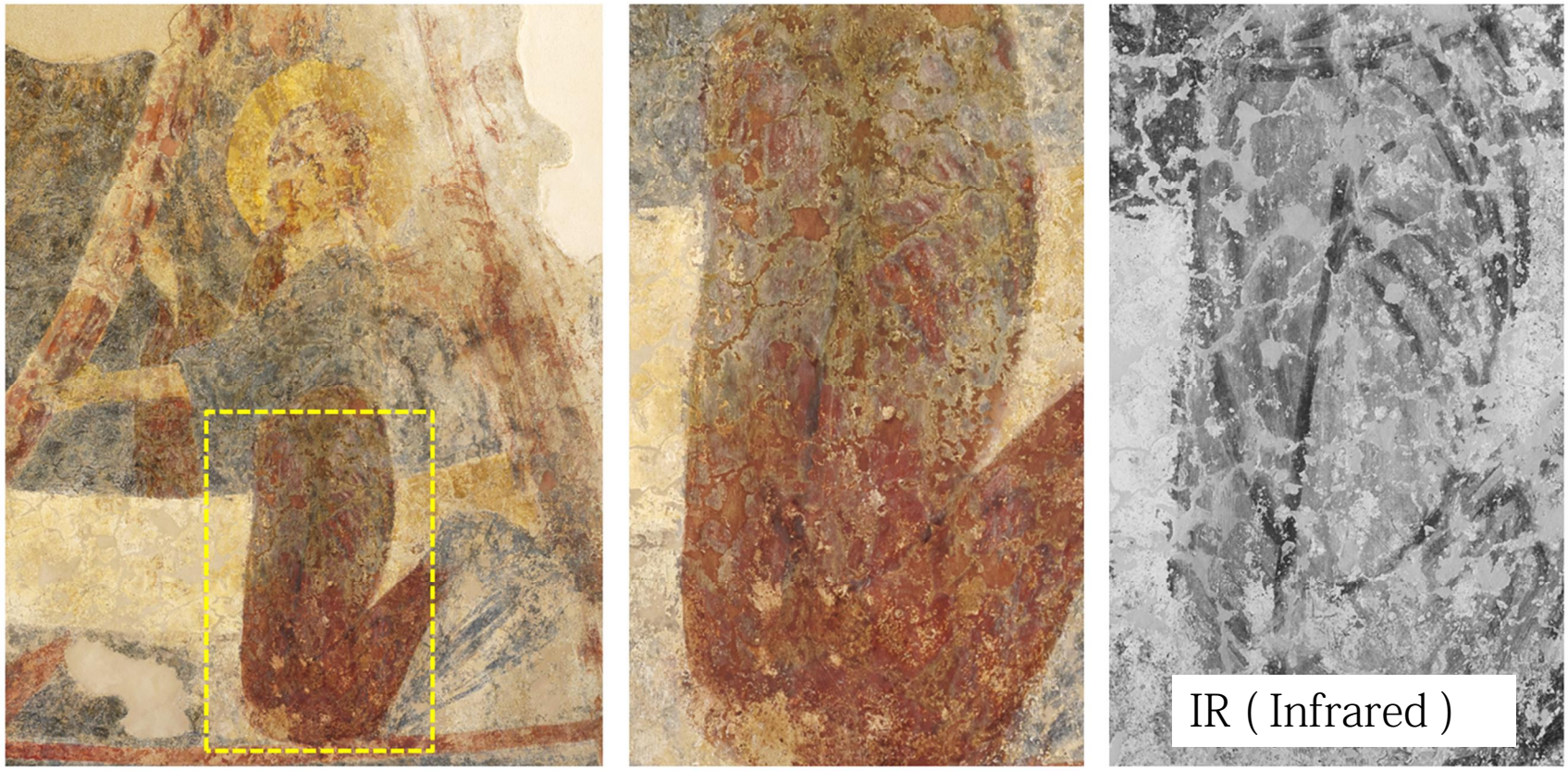
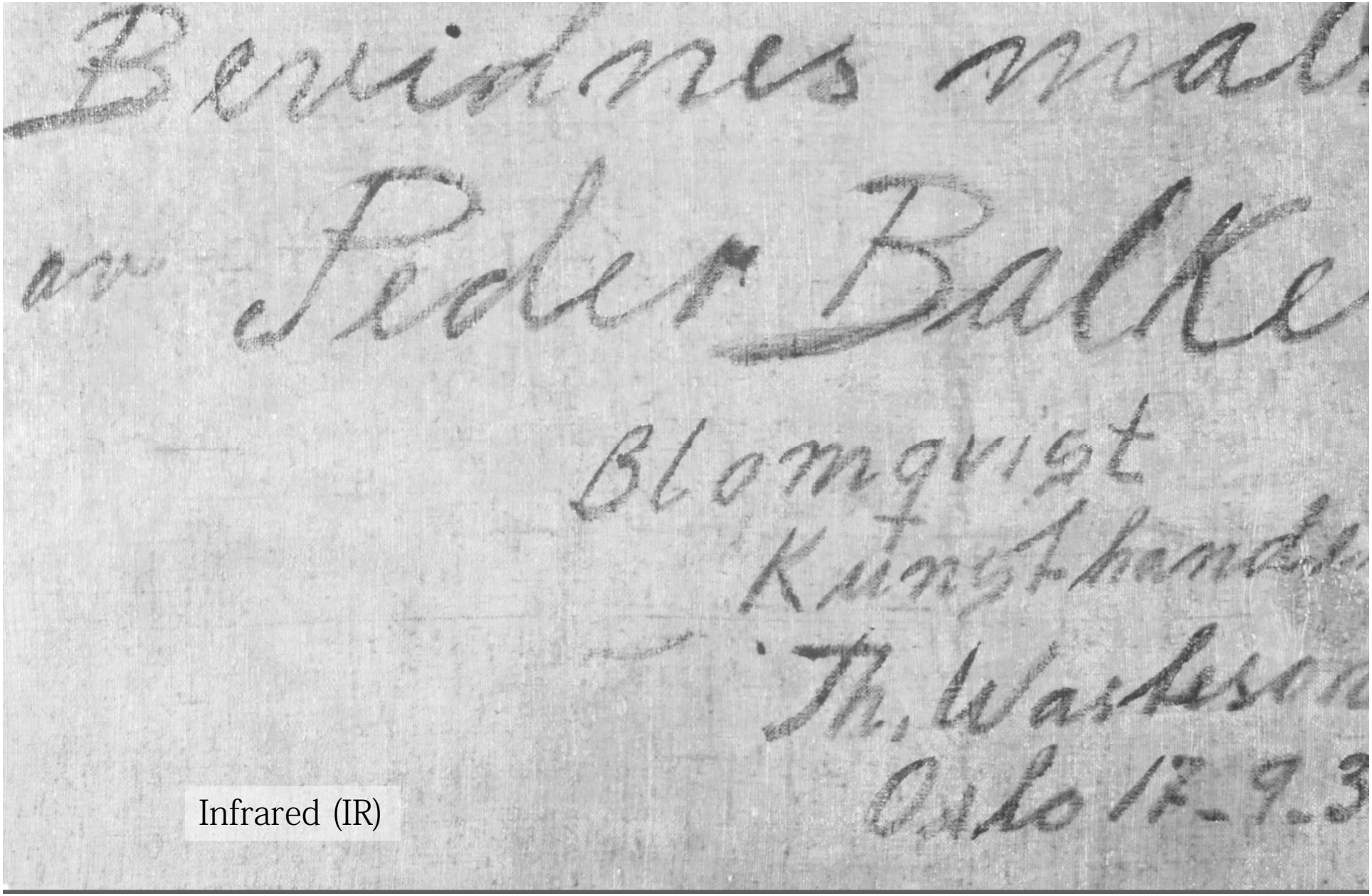
A. Cosentino "Indagine diagnostica multispettrale sugli affreschi" in "La Nunziatella sopra Mascali", ed. G. Buda. Soprintendenza ai BB.CC e Ambientali di Catania. Palermo, 2015.

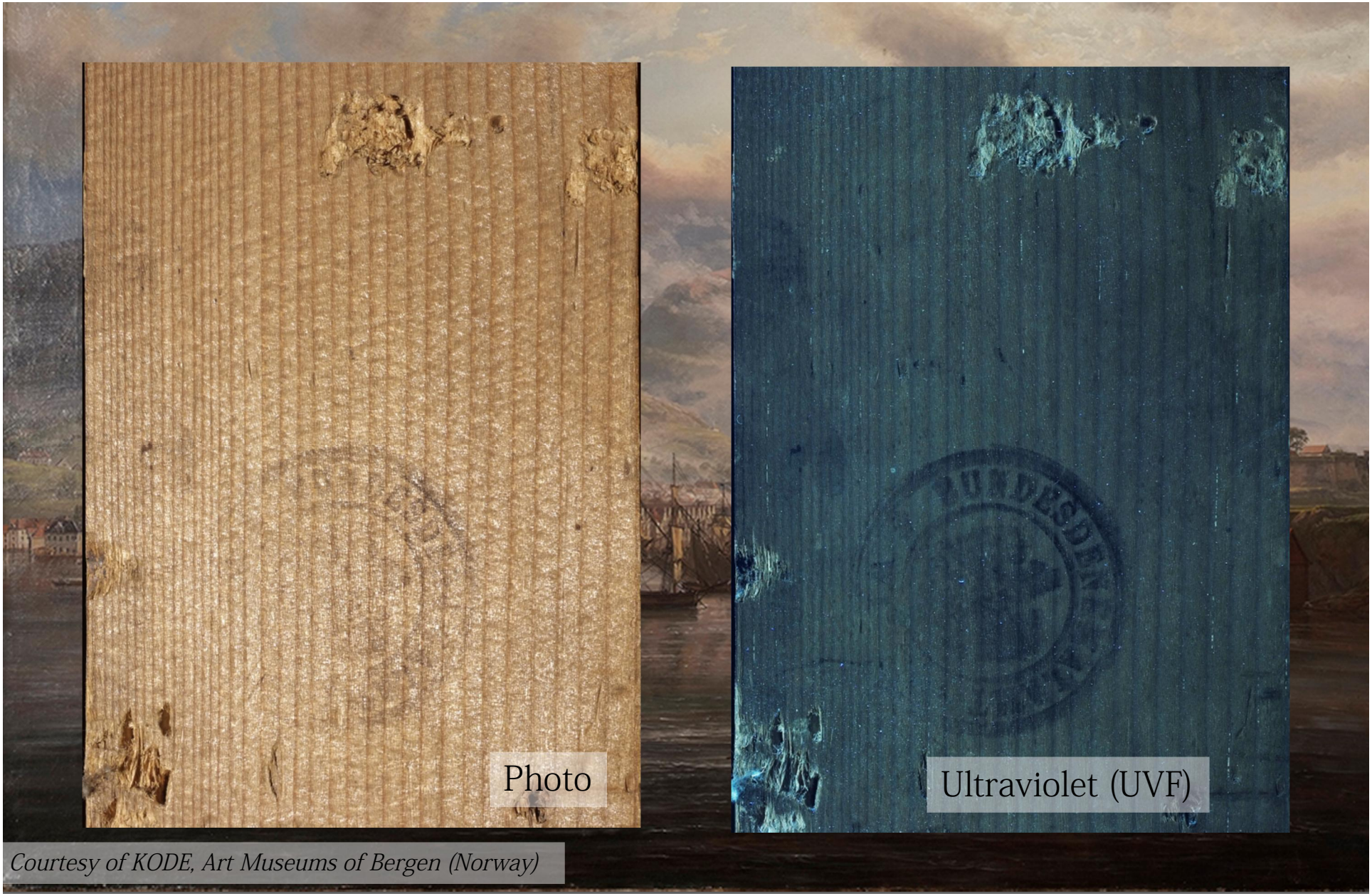
Chiesa della Nunziatella, Nunziatella di Mascali.





Infrared (IR)


L. Nr.
152
Infrared (IR)

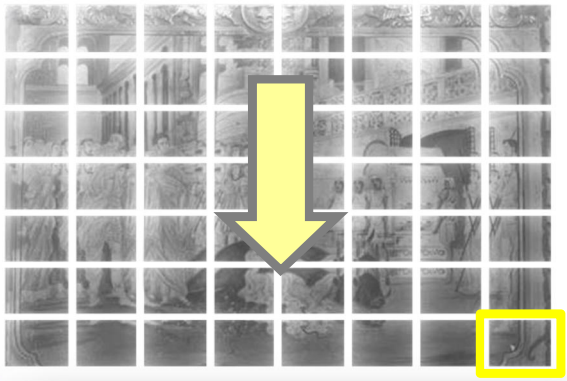


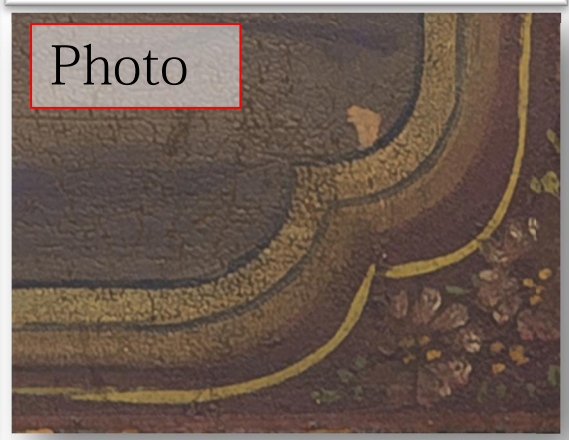
Courtesy of KODE, Art Museums of Bergen (Norway)

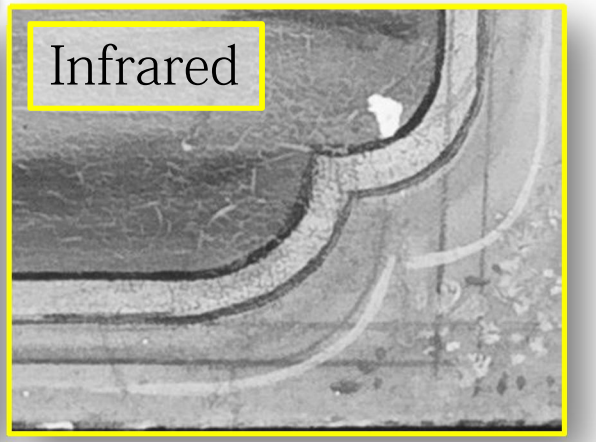

Infrared False Color Photo
Courtesy of KODE, Art Museums of Bergen (Norway)

Panoramic Infrared Reflectography, PIRR

A fast and low-cost solution for infrared reflectography



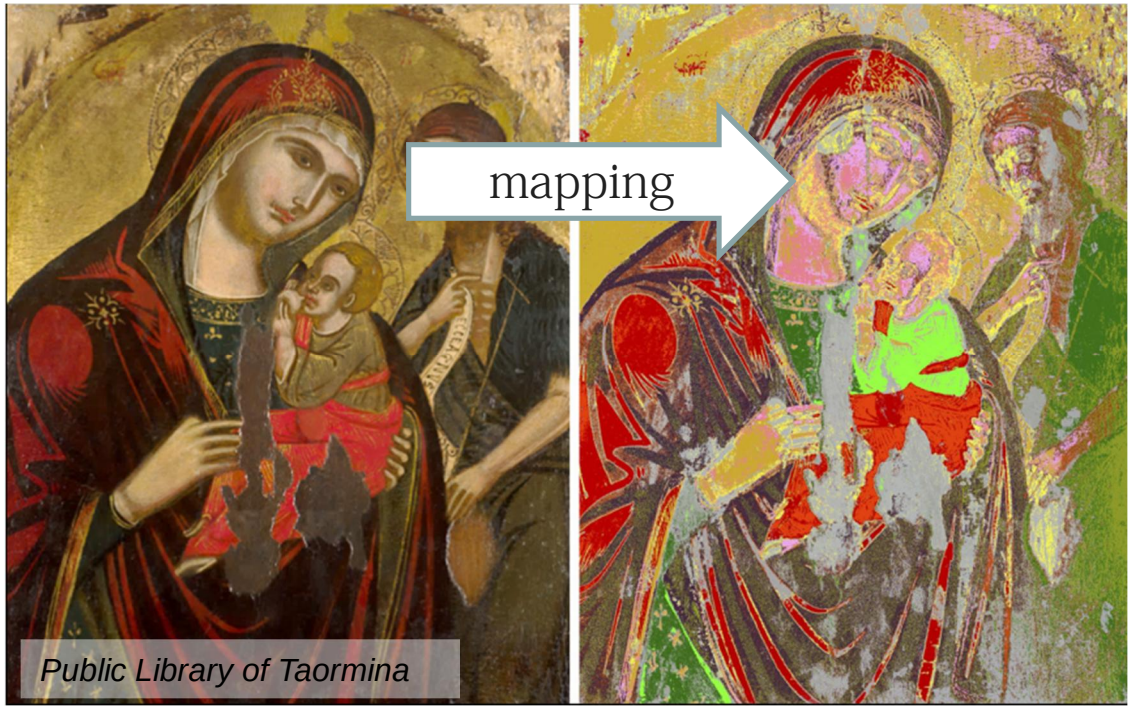




Multispectral Imaging, MSI

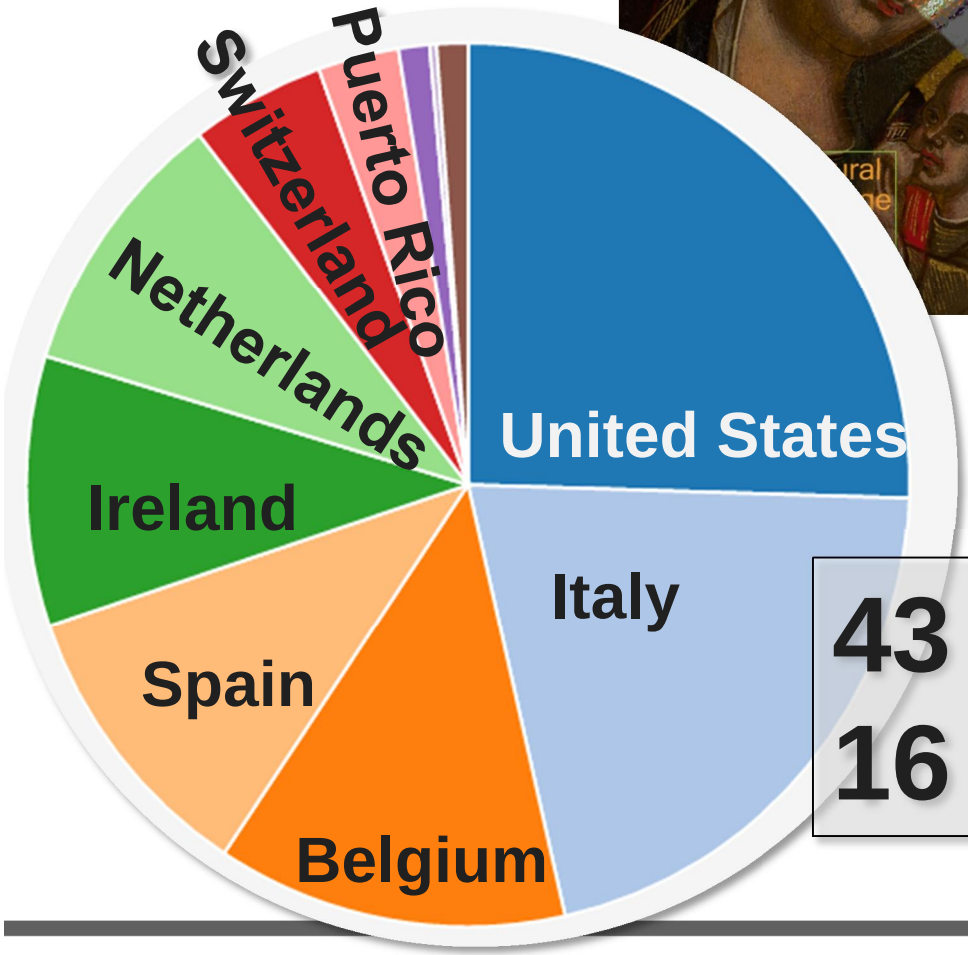
Low-cost equipment.

18 bandpass filters and a digital camera



INDIEGOGO

Multispectral Imaging
for Art and Archaeology



Crowdfunding:

$ 10,000

43 donors
16 Countries

CHSOS – master plan

Mission

Promote
Innovative
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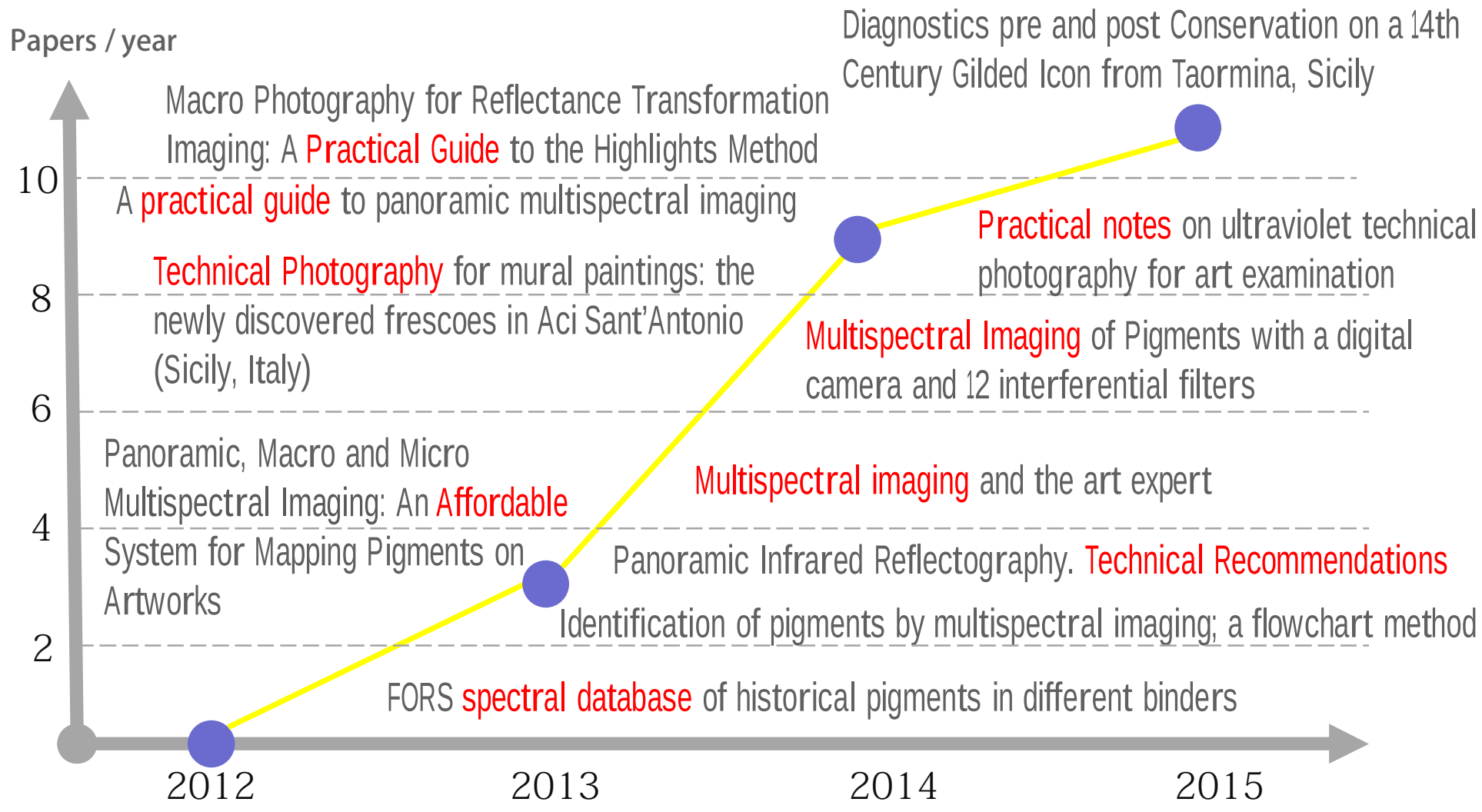

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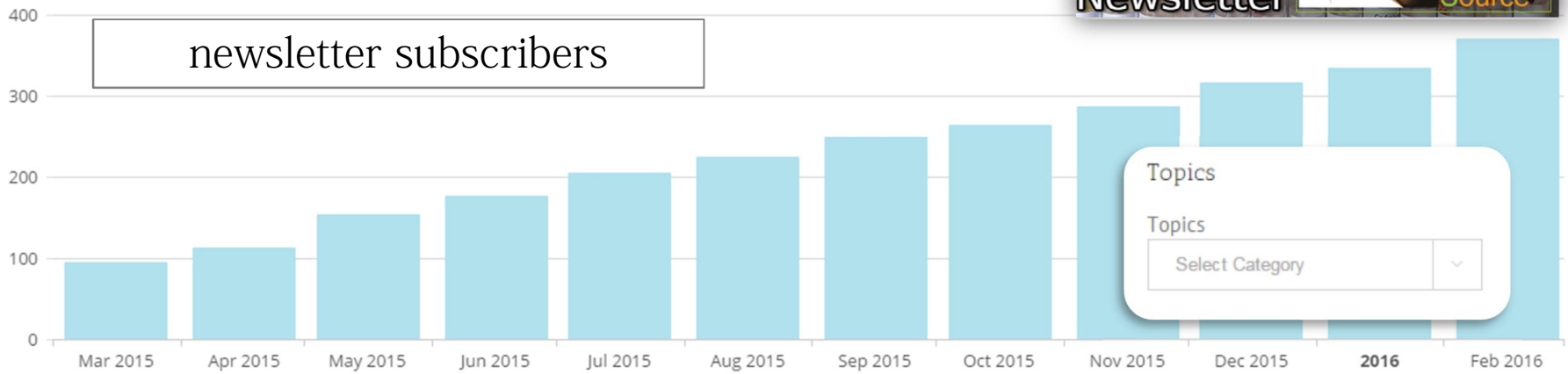
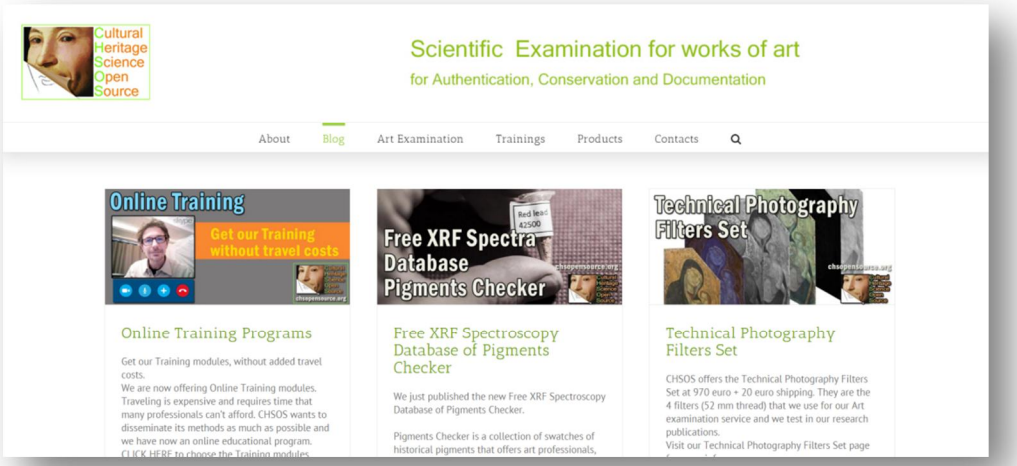
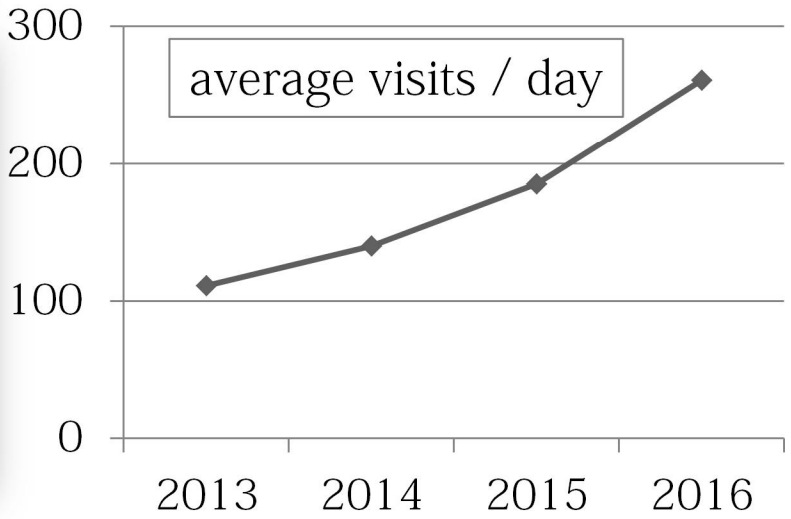
CHSOS – blog

Our supporting community

newsletter subscribers







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CHSOS – art examination service

On-site

We provide these methods on-site with our traveling equipment

Off-site

We take tiny samples to analyze them in our Studio

- Technical Photography (TP)
- Multispectral Imaging (MSI)
- Infrared Reflectography (IRR)
- APD, Advanced Photo Documentation
- Reflectance Spectroscopy (RS)
- Raman Spectroscopy (RS)
- Cross-section Optical microscopy (OM)

- RAK (Raking light) → Brush strokes
- UVF (Ultraviolet Fluorescence) → Detect inpaints
- IRFC (Infrared False Color) → Mapping Zinc white, Titanium white
- UVR (Reflected Ultraviolet) → Mapping Zinc white, Titanium white
- IRF (Infrared Fluorescence) → Mapping Cadmium pigments, Egyptian blue
- IR (Infrared) → Mapping Cadmium pigments, Egyptian blue
- IRT (Transmitted Infrared) → Detect underdrawing
- Mapping Pigments → Detect Underdrawing
- Detect Underdrawing → Detect incisions, virtual tours, high resolution
- Detect incisions, virtual tours, high resolution → Preliminary Pigments Identification
- Pigments Identification
- Visualize paint layers, preparation and ground

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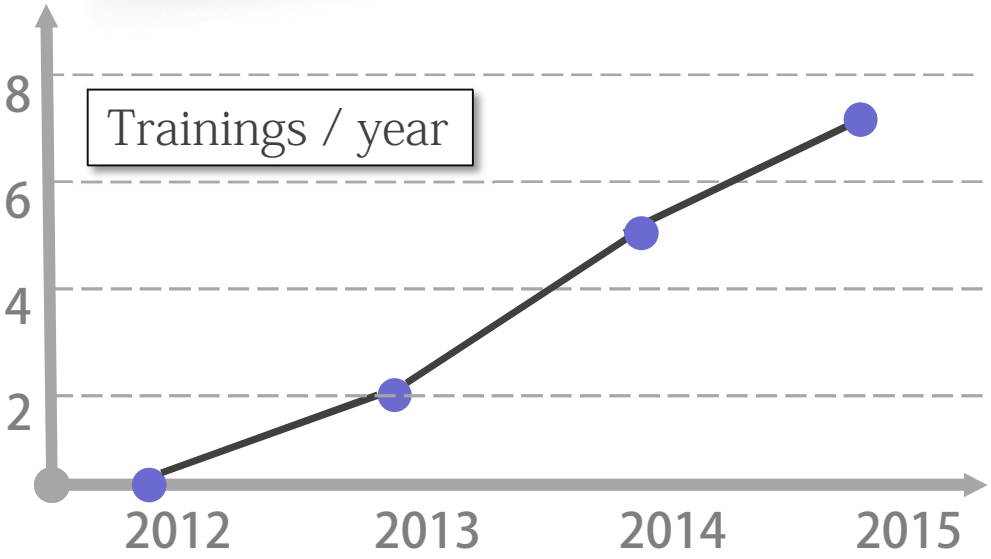
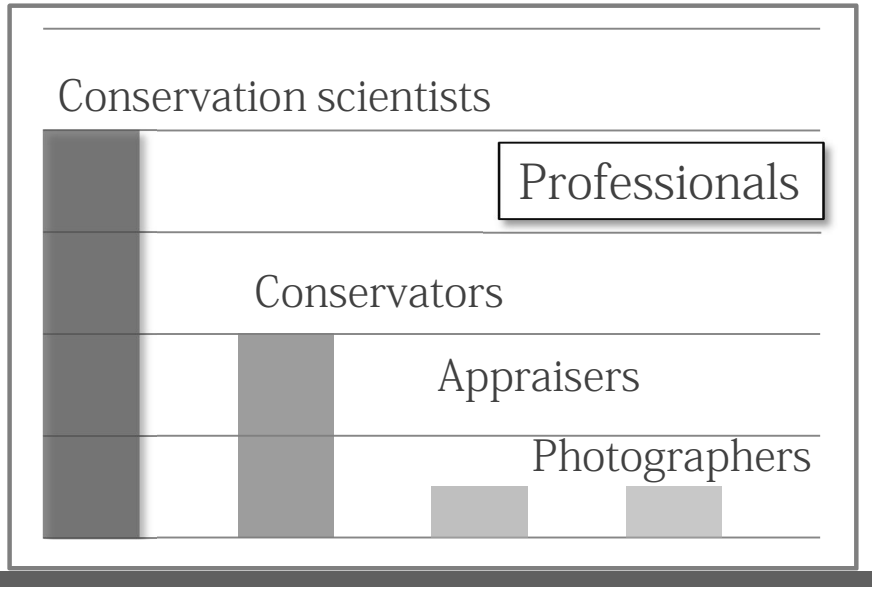
CHSOS – trainings





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Cultural
Heritage
Science
Open
Source

Training Programs

A very diverse audience

(conservators, fine art photographers, art historians, conservation scientists)

↓

method

↓

All hands-on activity

↓

goal

↓

Illustrate practical workflows for each examination methods

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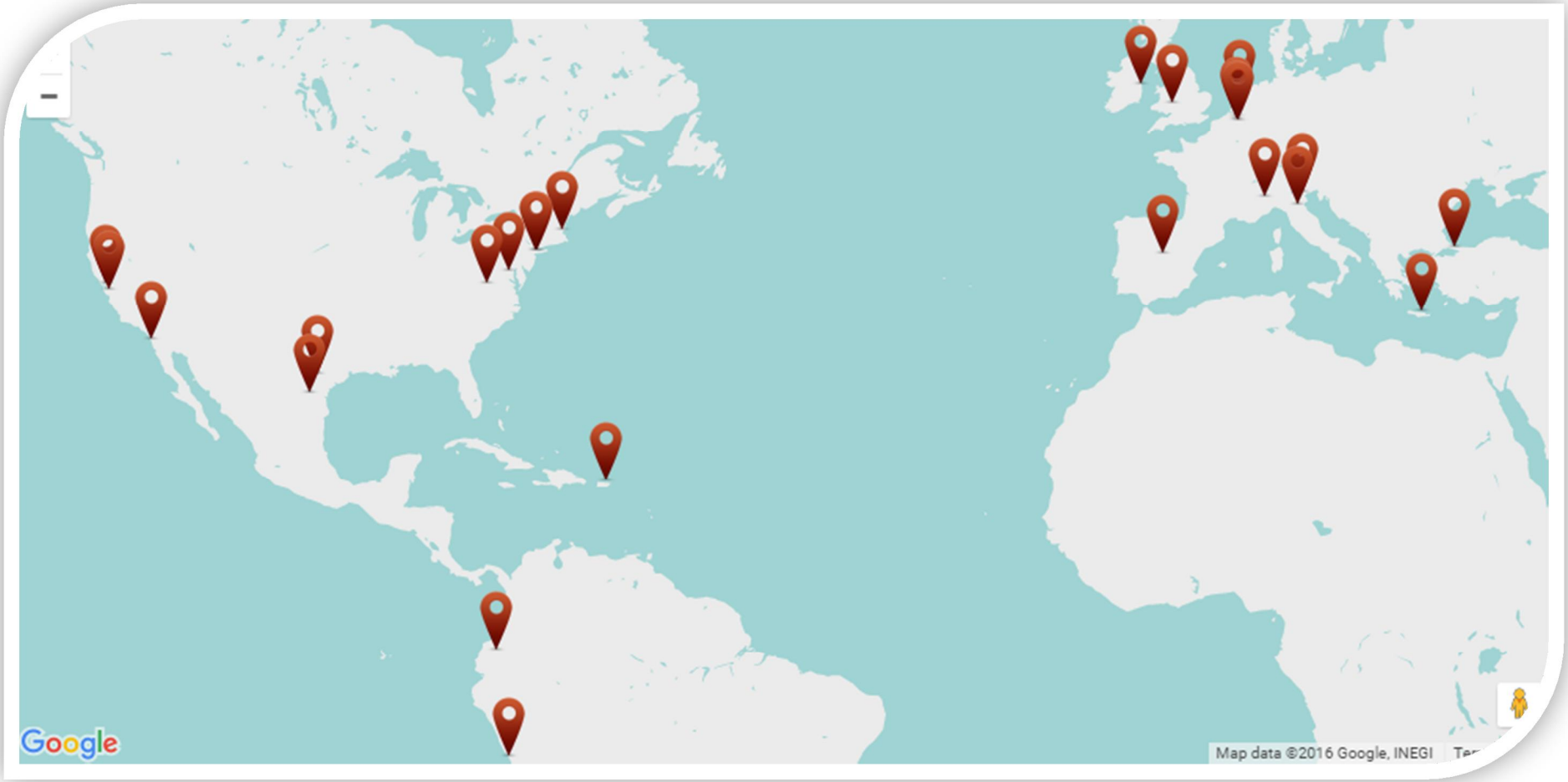
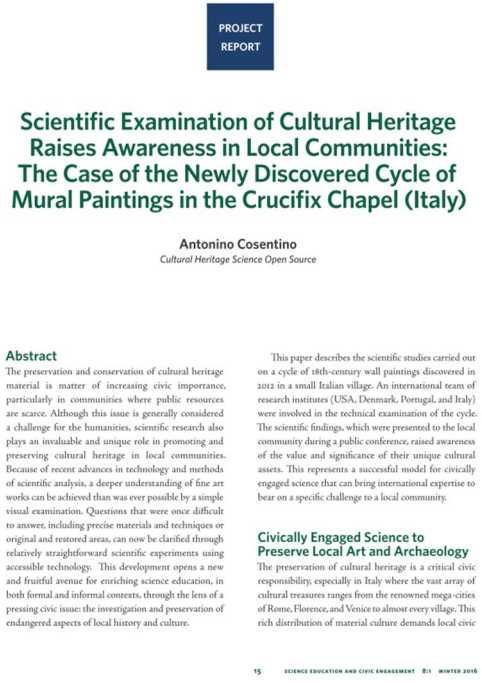

Google
Map data ©2016 Google, INEGI

Low-cost
Scientific examination of Cultural Heritage raises awareness in local communities

2 Examples in Sicily

A. Cosentino "Scientific examination of Cultural Heritage raises awareness in local communities: The case of the newly discovered cycle of mural paintings in the Crucifix chapel (Italy)" Science Education and Civil Engagement, 8:1, 15-20, 2016.



PROJECT REPORT

Scientific Examination of Cultural Heritage Raises Awareness in Local Communities: The Case of the Newly Discovered Cycle of Mural Paintings in the Crucifix Chapel (Italy)

Antonino Cosentino
Cultural Heritage Science Open Source

Abstract

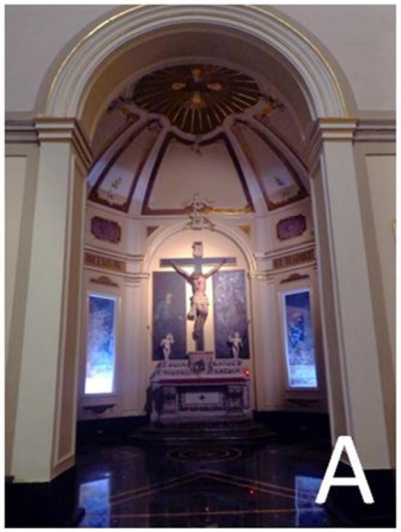
The preservation and conservation of cultural heritage material is matter of increasing civic importance, particularly in communities where public resources are scarce. Although this issue is generally considered a challenge for the humanities, scientific research also plays an invaluable and unique role in promoting and preserving cultural heritage in local communities. Because of recent advances in technology and methods of scientific analysis, a deeper understanding of fine art works can be achieved than was ever possible by a simple visual examination. Questions that were once difficult to answer, including precise materials and techniques or original and restored areas, can now be clarified through relatively straightforward scientific experiments using accessible technology. This development opens a new and fruitful avenue for enriching science education, in both formal and informal contexts, through the lens of a pressing civic issue: the investigation and preservation of endangered aspects of local history and culture.

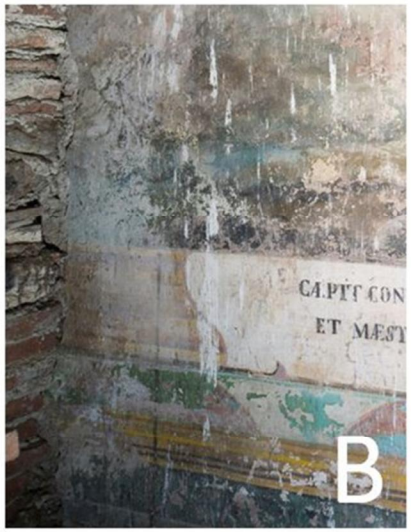
This paper describes the scientific studies carried out on a cycle of 18th-century wall paintings discovered in 2012 in a small Italian village. An international team of research institutes (USA, Denmark, Portugal, and Italy) were involved in the technical examination of the cycle. The scientific findings, which were presented to the local community during a public conference, raised awareness of the value and significance of their unique cultural assets. This represents a successful model for civically engaged science that can bring international expertise to bear on a specific challenge to a local community.

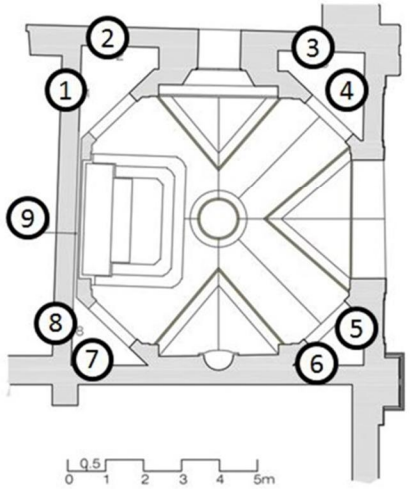
Civically Engaged Science to Preserve Local Art and Archaeology

The preservation of cultural heritage is a critical civic responsibility, especially in Italy where the vast array of cultural treasures ranges from the renowned mega-cities of Rome, Florence, and Venice to almost every village. This rich distribution of material culture demands local civic

1. The Crucifix chapel in Aci Sant' Antonio







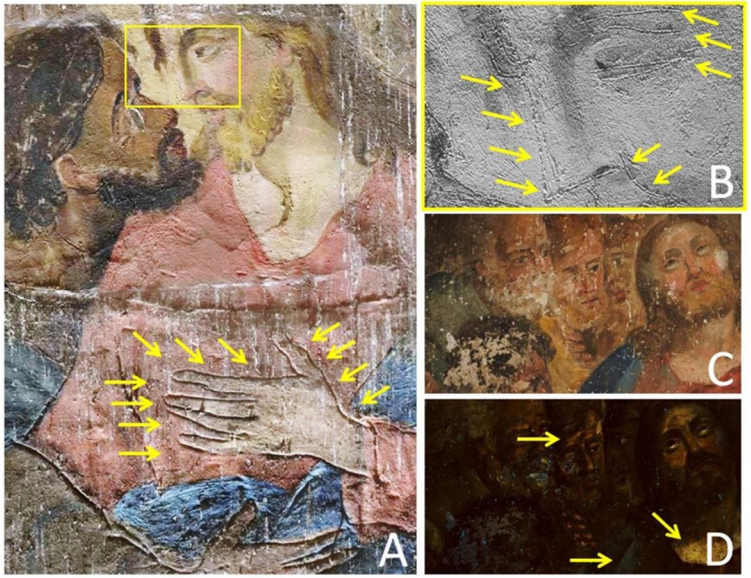
Wall paintings scenes

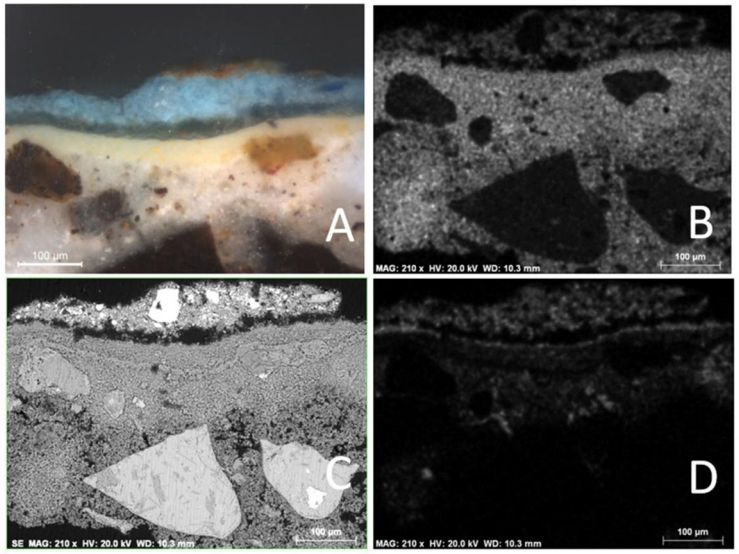
C

1. Jesus meets the Virgin
2. Last supper
3. Agony in the garden
4. Kiss of Judas
5. Flagellation
6. Jesus at the column
7. Flagellation in Via Crucis
8. Jesus fallen down under the Cross
9. Crucifixion

1. Scientific Research ⇒ 2. Publications ⇒ 3. Community Awareness

4. Conservation intervention





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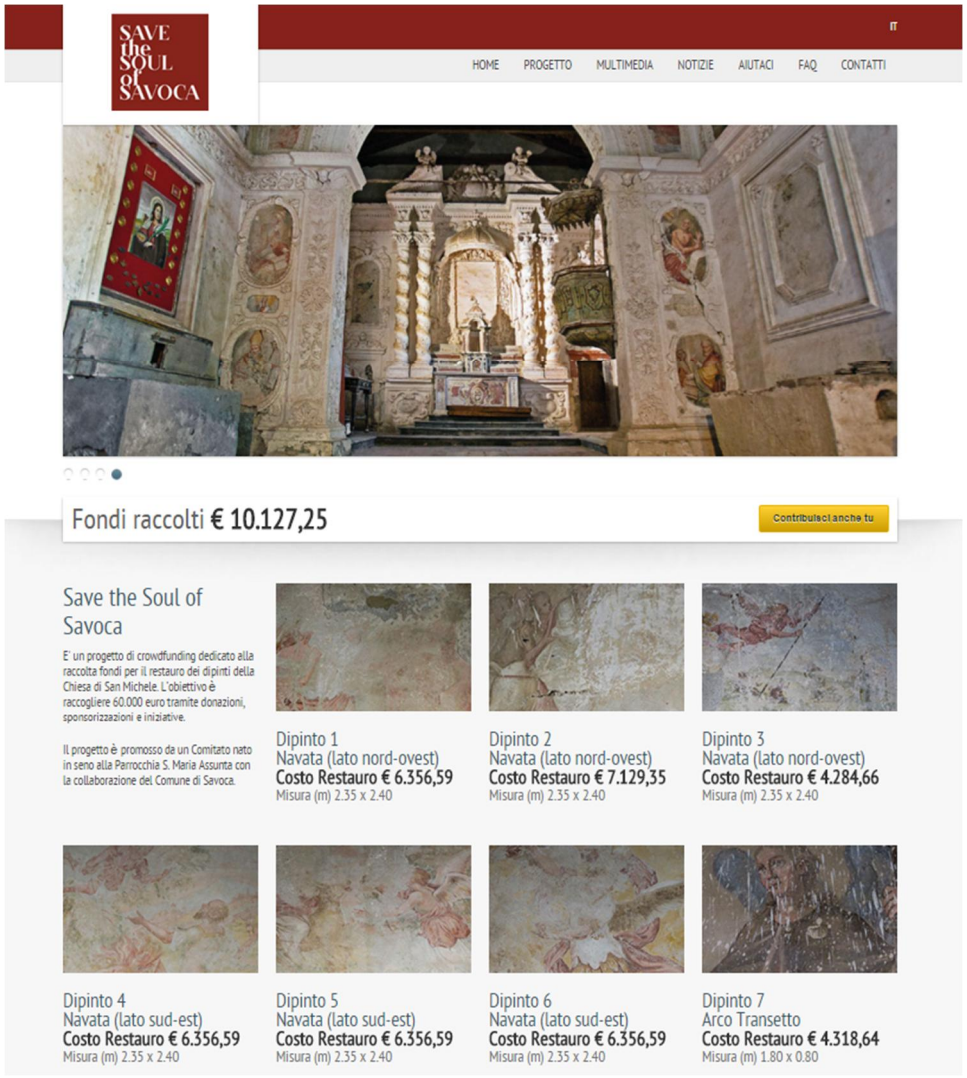
2. Chiesa di San Michele (Savoca)



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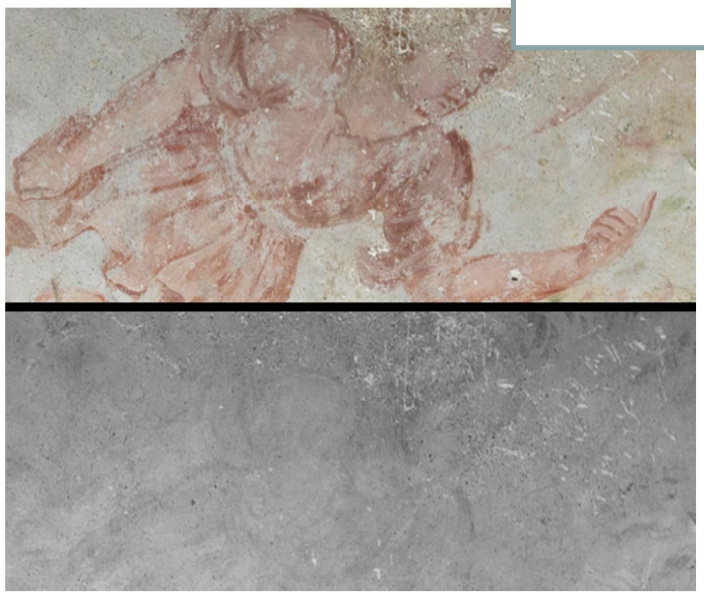

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Thanks