

The Third International Workshop

Florence 2022
April 24th-27th

“ANALYSING ART:

NEW TECHNOLOGIES - NEW APPLICATIONS”

Programme

The Third International Workshop, Analyzing Art: New Technologies – New Applications, is dedicated to the application of new technologies in the analysis of cultural heritage. This workshop is being held in one of the most magnificent cities in the world, Florence, Italy, from 24-27 April 2022.



Message from Professor Roman Gr Maev, Programme Committee Chair

Dear colleagues and guests!

As the Workshop Chair of the Conference Programme Committee, I am honoured to greet and welcome all of you to the third international conference **'Analysing Art: New technologies – New applications'**. The idea for this conference was generated at the Art '14 symposium in Madrid organised by both the Spanish and Italian Associations of Non-Destructive Testing (AEND and AIPnD, respectively) with the idea for it to be held every two years.

The first conference was held with great success in May of 2016 in London, in the great halls of Canada House, located in Trafalgar Square in the heart of the British capital. For the second conference, the Organising Committee unanimously chose St Petersburg and two years later, in 2018, the second conference was held there, in the beautiful halls of the Russian Marble Palace, with hospitality provided by the Russian State Museum.



Professor Roman Maev, Chair

Just like the first time, our second conference was held with great success and high attendance, with great research and interesting social programmes. It was a strong reason to move forward with the third conference for which the Organising Committee chose Florence. Unfortunately, the pandemic did not allow us to hold the conference during our regular two-year period, but finally we were able to make it! I am pleased to congratulate all that are enjoying being here in beautiful Florence at this wonderful time of year for this event.

So today, we are opening the third conference here in Florence, in the charming Michelangelo Hotel. As with both previous conferences, we hope that our third in the series will be held with great success. Each time, we would like this conference to occur with the unique charm and character of the hosting country. This time, in comparison with the programme of the previous conferences, we have emphasised the problems of architectural restoration and conservation of objects of historic and cultural heritage, a topic that is extremely important for Italy.

Another defining characteristic of our conference is its multidisciplinary nature. It attracts specialists in the field of art, restoration and conservation of art objects and monuments of cultural heritage, experts in the field of architectural restoration, physicists, engineers, managers and entrepreneurs in this field. All of this provides a unique platform for communication and cooperation with colleagues from various professions, traditional schools and regions of the world actively working in this field.

The Programme Committee did its utmost to prepare a serious and rich programme. This includes invited papers on a wide range of topics and also several thematic panel discussions. It should be noted that thanks to the support of the *Insight* Journal of the British Institute for Non-Destructive Testing (BINDT), most of the papers presented at this conference will be published in special editions of this journal.

I would like to express my immense gratitude to all our wonderful sponsors who supported our enthusiasm and without whom this conference would not have been possible. I would also like to sincerely thank all the members of our international team who were responsible for the preparations of the conference and who devoted a lot of their time to make this conference a success.

And finally, I would like to thank all of you dear participants for bringing your ideas, knowledge and expertise to this most interesting sphere with the noble goal of preserving world cultural heritage for future generations.

I wish all participants of the conference new and interesting contacts, fruitful work and promising joint initiatives!

**Professor Roman Gr Maev, Dr Sc, PhD, P. Phys, Fellow IEEE, Fellow BINDT, Fellow CINDE, Fellow RSNTTD
Chair of the Programme Committee, Director-General,
The Institute for Diagnostic Imaging Research, University of Windsor, Ontario, Canada**

*Message from David Gilbert,
Chief Executive Officer of the British Institute of Non-Destructive Testing
and Chair of the Organising Committee*

The conservation and preservation of our cultural heritage are issues of growing importance in society today. In particular, the need for non-destructive investigation is naturally becoming essential, bearing in mind the value, uniqueness and often fragile nature of the subjects under evaluation.

On behalf of the President of the British Institute of Non-Destructive Testing (BINDT), Dr Iain Baillie, it is my great pleasure to welcome all attendees to this workshop focusing on **'Analysing Art: New Technologies – New Applications'** in the wonderfully appropriate location of Florence. The synergy among the expert delegates at this event will lead to continuous development of new scientific methods in the fields of preservation, reconstruction and diagnostics of cultural and environmental artworks.



David Gilbert, CEO, BINDT

At BINDT we aim to support all sectors that use non-destructive testing, monitoring and analysis technologies. We host several specialist groups concentrating on particular sectors, applications or new technologies, some of which are truly international and listed by the International Committee for NDT (ICNDT).

I should like to extend gratitude to the Conference Organising Committee and acknowledge the support of: the Study Commission on Cultural Heritage of the Italian Society for NDT (AIPnD); the local Government of Florence; Professor Lorenzo Capineri, Associate Professor, NDT, Department of Information Engineering, University of Florence; Mr John Twydale, MD of True Image Solutions Ltd; Karen Cambridge, Sharon Creed and all staff at BINDT; as well the kind support of all our sponsors. Last but by no means least, we are indebted to Professor Roman Maeve, Chair of the Programme Committee, for putting together a stimulating and informative programme of talks and forums that will foster the discussion and identification of key and emerging challenges and opportunities in research, development and field applications in this fascinating and high-priority area.

BINDT is pleased to organise this event and, following the publication of a special issue focusing on the analysis of art soon after the last workshop in this series, we look forward to publishing another special issue of *Insight* – the Journal of the British Institute of NDT – focusing on vital solutions for the preservation of art and cultural heritage artefacts for future generations.

David Gilbert CEng MInstNDT MIET
CEO, BINDT
General Secretary, International Committee for NDT (ICNDT)
Director, European Federation for NDT (EFNDT)



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Programme

Sunday 24 April 2022

17.00-17.30	Registration opens	
17.30-18.15	Opening Ceremony	
	Introduction	<i>Professor Dr Roman Maev, Programme Committee Chair</i>
	Welcome messages	<i>David Gilbert, CEO of BINDT, Chair of Organising Committee</i>
		<i>The Mayor of Florence</i>
		<i>Dr Dario Foppoli, Chair of the Study Commission on Cultural Heritage of the Italian Society for NDT (AIPnD)</i>
	Detail outline regarding scientific and social programme	<i>Dr Sandra Rossi, Director of the Easel Painting Department, Opificio delle Pietre Dure</i>
		<i>Professor Dr Roman Maev, John Twydale and Karen Cambridge</i>
18.15-20.00	Reception	

Monday 25 April 2022

09.00-09.30	Registration and coffee	
09.30-12.15	Session 1: Art analysis and heritage science. Actual challenges of today	<i>Chairs: Professor Dr Roman Maev, The Institute of Diagnostic Imaging, University of Windsor, Canada, and David Gilbert, CEO of BINDT, UK</i>
	Non-destructive testing for building diagnosis; Role of English Heritage's research strategy in preservation of cultural heritage collections	<i>Dr David Thickett, Senior Conservation Scientist, English Heritage, UK</i>
	Diagnostic analysis and monitoring for the safety assessment of historic wooden structures	<i>Dr Dario Foppoli, Chair of the Study Commission on Cultural Heritage of AIPnD, Italy</i>
10.30-10.45	Coffee break	
	The interaction between science and art: case studies at the Opificio delle Pietre Dure	<i>Dr Cecilia Frosinini, Former Director of the Easel Painting Department, Opificio delle Pietre Dure, Italy</i>
	Application of new metal deposition technology for in-field restoration of bronze and cast-iron artworks	<i>Dr Marco Galinha, President and CEO, Grupo Bel, Lisboa, Portugal</i>
	Non-destructive testing of coating during restoration works	<i>Professor Dr Vladimir Syasko, President, Russian Society for Non-Destructive Testing and Technical Diagnostics, St Petersburg, Russian Federation</i>
12.15-13.30	Lunch break	
13.30-15.30	First Panel Discussion	
	Expertise and attribution. Immediate need of analysis and conservation	<i>Co-Chairs/Moderators: Professor Dr Roman Maev, The Institute for Diagnostic Imaging, University of Windsor, Canada, and Dr Sandra Rossi, Director of the Easel Painting Department, Opificio delle Pietre Dure, Italy</i> <i>Participants: Dr Cecilia Frosinini, Former Director of the Easel Painting Department, Opificio delle Pietre Dure, Italy, Dr Daria Khristova, Director, Russian Department, Bonhams, UK, Dr Michal Lukomski, Head of Preventative Conservation Research, Getty Conservation Institute, USA, Dr Giuseppe Nardoni, Academia NDT International, Italy, and Dr Christina Bisulca, Andrew W Mellon Conservation Scientist, Detroit Institute of Arts (DIA), USA</i>
15.30-16.00	Coffee break	

16.00-18.30	Second Panel Discussion	
	Cultural Heritage. Non-invasive monitoring and restoration of architectural objects	<p><i>Co-Chairs/Moderators: Dr David Thickett, Senior Conservation Scientist, English Heritage, UK, and Dr Anna Vyazemtseva, Professor of History of Architecture, Polytechnic School of Genoa University, Italy</i></p> <p><i>Participants: Dr Marco Galinha, President and CEO, Grupo Bel, Lisboa, Portugal, Professor Lorenzo Capineri PhD, Associate Professor, NDT, Department of Information Engineering, University of Florence, Italy, Professor Dr Vladimir Syasko, President, National Society for Non-Destructive Testing and Technical Diagnostics, Russian Federation, Professor Stefano Sfarra PhD, Associate Professor, Department of Industrial and Information Engineering and Economics, University of L'Aquila, Italy, and Professor Xavier Maldaque, Electrical and Computer Engineering Department, University of Laval, Québec, Canada</i></p>
17.30	Close of day	
17.30-20.00	Museum tour – optional (additional charge may apply)	
20.30	Banquet	

Tuesday 26 April 2022

09.00-09.30	Coffee	
09.30-12.45	Session 2: Advanced technologies. Pros and cons of non-invasive and invasive (microanalysis) methods in art analysis practice – Competition or complementary study	<i>Chairs: Dr Michal Lukomski, Head of Preventative Conservation Research, Getty Conservation Institute, USA, and Dr Joseph Buckley, Consultant, Level X NDT, UK</i>
	A multi-analytical approach for the non-invasive analysis of painted surfaces	<i>Dr Raffaella Fontana, Istituto Nazionale di Ottica, Italy</i>
	Micromechanical characterisation of historic and artists' paints	<i>Dr Michal Lukomski, Head of Preventative Conservation Research, Getty Conservation Institute, USA</i>
	Use of terahertz imaging for investigation of cultural heritage	<i>Joseph Buckley, Consultant, Level X NDT, UK</i>

11.00-11.15	Coffee break	
	What does medical imaging offer to art analysis?	<i>Dr Colin Hopper, Clinical Professor UCL, Eastman Dental Institute, London, UK</i>
	A non-invasive survey of Asian painting materials at the DIA, Detroit	<i>Dr Christina Bisulca, Andrew W Mellon Conservation Scientist, DIA, Detroit, USA</i>
	Digital radiography for art conservation: Carestream's digital solutions CR and DR applied to museum conservation departments and teaching institutions	<i>Dr Laurie Viozat, Sales Manager NDT, Carestream, Italy</i>
12.45-14.00	Lunch break (Organising Committee Lunch)	
14.00-16.45	Session 3: Data analysis and data security	<i>Session Chairs: Lluís Aranda, BAC Engineering Consultancy Group, Barcelona, Spain, and Dr Paul Lindahl, CEO Arius Technology Inc, Canada</i>
	Non-invasive health monitoring and forgery detection of the fine art and culture heritage objects via unique patterns matching	<i>Professor Dr Roman Maev, The Institute for Diagnostic Imaging, University of Windsor, Canada</i>
	A study by NDT of the effects of adhesion in ceramic pieces on the facade and how it affects the thermal sealing of the envelope in a unique protected building	<i>Lluís Aranda, BAC Engineering Consultancy Group, Barcelona, Spain</i>
15.00-15.15	Coffee break	
	Domain name systems: How to store information in a standardised, stable, decentralised and secure way	<i>Dr Kurt Pritz, UK Creative Ideas Strategic Planning Board (.art), UK</i>
	Monitoring changes in wooden artworks to inform the development of environmental control strategies for art collections	<i>Dr Michal Lukomski, Head of Preventative Conservation Research, Getty Conservation Institute, USA</i>
	Elevating fine art data capture, replication and analysis	<i>Dr Paul Lindahl, CEO Arius Technology Inc, Canada</i>
16.45-19.00	Tour to local museums	
19.00	Close of day	



Wednesday 27 April 2022

09.00-09.30	Coffee	
09.30-12.15	Session 4: Culture, historical and architectural heritage restoration	<i>Chairs: Professor Stefano Sfarra PhD, Associate Professor, Department of Industrial and Information Engineering and Economics, University of L'Aquila, Italy, and Dr Cristiano Riminesi, Institute of Heritage Science of the National Research Council, Italy</i>
	The Shroud of Turin: new research	<i>Professor Ezio Carlino, National Research Council of Italy (CNR) and Dr Giuseppe Nardoni, Academia NDT International, Italy</i>
	Restoration of interwar Italian totalitarian architectural heritage: between conservation and innovative solutions	<i>Dr Anna Vyazemtseva, Professor of the History of Architecture, Polytechnic School of Genoa University, Italy</i>
	Non-destructive inspection of an old hand-bound book	<i>Professor Xavier Maldague, Electrical and Computer Engineering Department, University of Laval, Québec, Canada</i>
11.00-11.15	Coffee break	
	Cultural heritage welding and NDT	<i>David Mandina, President/CEO Owner, Mandina's Inspection Services Inc, USA</i>
	Khufu Pyramid investigation: history and modern research	<i>Professor Lorenzo Capineri PhD, Associate Professor, NDT, Department of Information Engineering, University of Florence, Italy</i>
12.15-12.30	Coffee break	
12.30-14.30	Session 5: Culture, historical and architectural heritage restoration part II	<i>Chairs: Dr Monica Volinia, Politecnico di Torino, DAD Department of Architecture and Design, Italy, and Member of AIPnD Study Commission on Cultural Heritage, AIPnD, Italy, and Dr Marco Galinha, President and CEO, Grupo Bel, Lisboa, Portugal</i>
	Microwave application experiences for the conservation of cultural heritage	<i>Dr Cristiano Riminesi, Institute of Heritage Science of the National Research Council, Italy</i>
	The contribution of mock-ups for the inspection of cultural heritage objects: a short review centred on infrared thermography technique	<i>Professor Stefano Sfarra PhD, Associate Professor, Department of Industrial and Information Engineering and Economics, University of L'Aquila, Italy</i>
	Non-destructive investigations for the evaluation of the structural behaviour of historic monumental buildings	<i>Professor Massimo Coli, Dipartimento di Scienze della Terra, Università di Firenze, Italy</i>
	Ultrasound-based multimodal imaging for cultural heritage: ageing of the weathered Tuffeau stone	<i>Professor Serge Dos Santos, INSA Centre Val de Loire, Blois, France</i>

14.30-14.45	Closing Ceremony	<i>Chairs: Professor Dr Roman Maev, The Institute of Diagnostic Imaging, University of Windsor, Canada, and David Gilbert, CEO of BINDT, UK</i>
14.45	Close of day	

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