



International Conference

FLORENCE
HERI-TECH

The Future of Heritage Science
and Technologies

Villa Vittoria, Palazzo dei Congressi-Florence
16 - 18 MAY 2018

www.florenceheritech.com



Salone
dell'Arte
e del Restauro
di Firenze.
Biennale Internazionale Musei, Arte
Restauro e Tecnologie



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FLORENCE HERI-TECH

WELCOME

THE FUTURE OF HERITAGE
SCIENCE AND TECHNOLOGIES

Dear Participants,

We are very pleased to welcome you to the fascinating and iconic city of Florence to participate in the International Conference Florence Heri-Tech, hosted by **VI Edition of Art and Restoration Fair** in Florence, in partnership with by **DIEF - Department of Industrial Engineering of University of Florence**.

The Future of Heritage Science and Technologies Conference involves a large number of researchers and scholars from around the world and puts the industry's current issues under the spotlight, specifically on issues related to innovative techniques and technologies.

The Conference is part of the Florence International Biennial for Art and Restoration, an international event attracting prestigious institutions and companies and creating a unique opportunity to bring together the academic world with industry.

OBJECTIVES

Heri-Tech is the first International Conference to welcome **major researchers and scholars from all over the world**, focusing on current and future issues in the field on issues related to **innovative techniques and technologies**.

The city of Florence will therefore be the international heart of **Restoration and Cultural** and Environmental assets as well as a forum for meeting and discussing for experts, operators and enthusiasts from around the world.

The Conference will be a significant opportunity for exchange between **researchers and companies for the promotion of productive excellence**, technological evolution, the greater use of culture for younger sections of the population and specialization in the educational field for graduates and PhD students.

GENERAL CHAIRS

WELCOME BY THE HOST



Prof. Eng. Yary Volpe



Prof. Eng. Rocco Furferi



Prof. Mauro Matteini



Prof. Eng. Lapo Governi



Prof. Rodorico Giorgi

Under the patronage of the University of Florence and organized with the support of the **Department of Industrial Engineering**, Florence Heri-Tech has gathered researchers and experts in the field of "heritage science and related technologies" **to disseminate their recent research at an international level as well as to draw new inspiration.**

The topics cover experiences in the use of innovative technologies and methods for documenting, managing, preserving and communicating cultural heritage. Eighty-three experts, coordinated by the General Chairs and **supported by a high-level Scientific Committee**, have been involved in the review process which led to the selection of **112 papers (out of 173 submissions)** focusing on multi-disciplinary and inter-disciplinary research concerning future trends in **material science, engineering-related methods for Cultural Heritage, diagnostic and monitoring as well as digital heritage.**

The Honorary Chairs, Prof. Piero Baglioni, Prof. Giorgio Bonsanti, Prof. Vito Cappellini, Prof. Marco Ciatti, Prof. Maria Perla Colombini, Prof. Luigi Dei and Prof. Jose Delgado Rodrigues, which are not only experts in their research fields but also visionaries about the future of Cultural Heritage, further enhance the Conference prestige.

General Chairs extend their thanks to **all authors, speakers, and those persons whose labor, financial support and encouragement made the Florence Heri-Tech event possible!** Special thanks goes to Silvia Fiorini Granieri for her precious work in managing the organization of the Conference.

Dr. Lapo Governi, Dr. Rocco Furferi, Dr. Yary Volpe

Florence & VENUES

THE CITY OF FLORENCE

Florence has a fascinating history and played a vitally important role in shaping European art over the centuries. The historic centre of Florence contains such a wealth of masterpieces that it is difficult to separate the city from its art works. Florence is not just about the Uffizi or Palazzo Pitti; it is full of smaller, less well known gems that make it endlessly delightful to explore. In 1982 it was declared a World Heritage Site by UNESCO and even just a walk around the city centre will launch you into layer upon layer of architectural styles and artistic innovation, all surrounded by deeply-rooted culture, food and wine.

VILLA VITTORIA PALAZZO DEI CONGRESSI

Piazza Adua, 1



The main venue is the **19th century** Villa Vittoria in Palazzo dei Congressi. This historical venue is conveniently located in the city centre next to the central railway station.

At first glance Villa Vittoria is hidden behind the contemporary façade of the **Palazzo dei Congressi**, revealing itself when you've crossed the entrance hall and stepped into the centuries-old park that is part of the complex.

Villa Vittoria has been equipped with all modern comforts, yet maintains its original charm with lunette vaults on the ground floor, finely decorated coffered ceilings on the first floor, mosaic pavements in marble and terracotta, stone and marble marquetry portals, elegant coat of arms, finely decorated wrought iron gates and painted polychrome glass windows.

16 MAY, 2018

9:30-10:30 – AUDITORIUM

Grand Opening of 6th International Art and Restoration Fair 2018 edition and International Conference Florence Heri-Tech

10:45-12:00 – SALA VERDE

10:45-11:15: Plenary General Chairs

Prof. Giorgio Bonsanti, Prof. Eng. Rocco Furferi, Prof. Eng. Lapo Governi, Prof. Eng. Yary Volpe, Prof. Mauro Matteini - Dief, University of Florence, ICVBC CNR

11:15-11:35 Building Resilience to Natural Disasters. From G7 Science to the CERHER experience - Prof. Antonio Sgamellotti, Accademia Nazionale dei Lincei, University of Perugia

11:35-11:50 Company & Business Session: MOGS s.r.l Presentation

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9:30-10:30 – AUDITORIUM

9:30-9:50 Digital Access to Culture Heritage: Virtual Galleries - Prof. Emeritus Vito Cappellini, University of Florence

9:50-10:05 Company & Business Session: DI-MART s.r.l Presentation

10:05-10:15 Company & Business Session: ISTEMI sas Presentation

10:15-10:40 ICOMOS / Wikipedia

PLENARY sessions

**18 MAY, 2018
AUDITORIUM 9:30-12:30
EUROPEAN PLENARY SESSION**

9:30-9:40 Prof. Luigi Dei, Rector of University of Florence

9:40-9:50 Dr. Anna Pelagotti, European Commission

9:50-10:15 EU-project NANORESTART (NANOmaterials for the RESToration of works of ART) - Dr. Rodorico Giorgi

10:15-10:35 ECHOES "Enabling Cultural Heritage Oriented European Strategies" - Dr. Piero Baglioni

10:35-10:50 NANO-CATHEDRAL: Nano-materials, knowledge and skills for the restoration and protection of stone monuments - Dr. Isella Vicini, Dr. Andrea Lazzeri, Dr. Maria-Beatrice Coltelli, Dr. Lucia Tonio-
lo, Dr. Johannes Weber, Dr. Laura Niccolai, Dr. Ulrike Brinkmann, Dr. Angelica Pujja

11:10-11:30 The ARROWS Project: robotic technologies for underwater archaeology
Dr. Alessandro Ridolfi, Dr. Allotta, Dr. Costanzi, Dr. Ridol, Dr. Salvetti, Dr. Reggianini, Dr. Kruusmaa, Dr. Salumae, Dr. Lane, Dr. Frost, Dr. Tsiogkas, Dr. Cocco, Dr. Gualdesi, Dr. Lacava, Dr. Roig, Dr. Gundogdu, Dr. Dede, Dr. Baines, Dr. Tusa, Dr. Latti, Dr. Scaradozzi

11:30-11:50 Enhancing Heritage fruition through 3D semantic modelling and digital tools: the INCEPTION project - Dr. Federica Maietti, Dr. Roberto Di Giulio, Dr. Emanuele Piaia, Dr. Marco Medici, Dr. Federico Ferrari

11:50-12:00 Company & Business Session: RISVIEL s.r.l Presentation

12:00-12:10 Company & Business Session: C-SIX s.r.l Presentation

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12:10-13:25 – ROOM 106 ENGINEERING

12:10-12:35 *Motion magnification analysis applied to the dynamic identification of historic constructions* - Dr. Vincenzo Fioriti, Dr. Ivan Roselli, Dr. Angelo Tafi, Dr. Roberto Romano and Dr. Gerardo De Canio

12:35-13:00 *Results Of Diagnostic Campaign Promoted By Aiar In The Deposits Of The Archaeological Museum Of Paestum* – Dr. Maria Emanuela Oddo, Dr. Ricci, Dr. Angelici, Dr. Fantino, Dr. Sibilica, Dr. Alberghina, Dr. Schiavone, Dr. Grifa, Dr. Mercurio, Dr. Germinario, Dr. Izzo, Dr. Langella, Dr. Massa, Dr. Bracci, Dr. Magrini, Dr. Costa, Dr. Pelagotti, Dr. Zuchtriegel, Dr. Lubritto

13:00-13:25 *Methodology for tensile testing historic tapestries* – Dr. Pedro Josue Maximo Rocha, Dr. D'Ayala and Dr. Vlachou-Mogire

12:10-13:25 – ROOM 105 ICT AND DIGITAL HERITAGE

12:10-12:35 *Knitting virtual tribes together: new audiences for cultural objects* – Dr. Jane Malcolm Davies

12:35-13:00 *The Revival of a Cultural Heritage: Hangzhou Embroidery and its Development Today* – Dr. Chenxi Qi

13:00-13:25 *The future of Heritage Science and Technologies from a legal point of view* – Dr. Silvia Segnalini

12:10-13:25 – ROOM 105 DIAGNOSTIC AND MONITORING

12:10-12:35 *New generation monitoring devices for heritage caretakers to detect multiple events and hazards* – Dr. Olivier Schalm, Dr. W Anaf, Dr. J Callier and Dr. Diana Leyva Pernia

12:35-13:00 *Seismic Assessment of Artefacts: The Case of Juno's Fountain of The National Museum of Bargello* - Dr. Stefania Viti, Dr. Cerri, Dr. Pirazzoli, Dr. Tanganelli, Dr. Verdiani, Dr. Rotunno, Dr. Pintucchi

13:00-13:25 *Improvement of visibility of concealed features in misregistered NIR reflectograms by Deep learning* – Dr. Honza Blažek, Dr. Oldrich Vlasic, Dr. Barbara Zitova

15:10 – 16:25 ROOM 106 ENGINEERING

15:10-15:35 *Mutual validation between different modal analysis techniques for dynamic identification of the so-called Temple of Minerva Medica, Rome* – Dr. Ivan Roselli, Dr. Vincenzo Fioriti, Dr. Marialuca Mongelli, Dr. Irene Bellagamba and Dr. Gerardo De Canio

15:35-16:00 *A New Methodology for the Structural Analysis of 3D Digitized Cultural Heritage through FEA* – Dr. Sara Gonizzi Barsanti, Dr. Gabriele Guidi

16:00-16:25 *Numerical evaluation of seismic-induced damages in masonry elements of historical arch viaduct* – Dr. Izabela Joanna Drygala, Dr. J Dulinska, Dr. Ł Bednarz and Dr. J Jasienko

15:10 – 16:25 ROOM 105 ICT AND DIGITAL HERITAGE

15:10-15:35 *Digital restoration of the Last Supper and multimedia tools to experience education* – Dr. Mario Taddei

15:35-16:00 *Discovering Cultural Heritage Through the Use of Virtual Reality for Education* – Dr. Vasileios Apollon Papas, Dr. Moneera Al Sagar

16:00-16:25 *Immersive Virtual Reality as A Resource for Unaccessible Heritage Sites* – Dr. Giovanni de Gasperis, Dr. Alessio Cordisco and Dr. Francesco Cucchiara

15:10 – 16:25 ROOM 105 DIAGNOSTIC AND MONITORING

15:10-15:35 *Application Of Coatings On Silver Studied With Punctual And Imaging Techniques: From Specimens To Real Cases* – Dr. Monica Galeotti, Dr. Vittorio Barra, Dr. Claudia Daffara, Dr. Simone Porcinai

15:35-16:00 *Revisiting Reflectance Transformation imaging (RTI): A Tool for Monitoring and Evaluating Conservation Treatments* – Dr. Kate Seymour, Dr. Rosa Boute, Dr. Marjolein Hupkes, Dr. Noa Kollaard, Dr. Sepha Wouda, Dr. Lauren ten Wolde

16:00-16:25 *Limits of reflectance spectroscopy in identifying pigments in paint layers* – Dr. Anna Pelagotti, Dr. Pronti Dr. Ucheddu, Dr. Massini Rosati Dr. Felici

PARALLEL sessions

**17:00-18:15 ROOM 106
ENGINEERING**

17:00-17:25 - *Light, Information and Perception inside Historical Buildings. A Case Study* – Dr. Carla Balocco, Dr. Alessandro Farini, Dr. Elisabetta Baldanzi and Dr. Giulia Volante

17:25-17:50 *Robust microclimate control for artwork preservation in response to extreme climatic conditions: simulation of museum halls for temporary exhibitions with a validated dynamic tool* – Dr. Eva Schito, Dr. Conti and Dr. Testi

17:50-18:15 *Computational simulation of hygrothermal processes in historical building envelopes provided with interior thermal insulation* – Dr. Jan Kočí, Dr. Jiří Maděra, Dr. Miloš Jerman, Dr. Magdaléna Doleželová, Dr. Robert Černý

**17:00-18:15 ROOM 105
MATERIALS SCIENCE**

Session Chair: Prof. JoAnn Cassar

17:00-17:25 *Determination of material parameters of thermal insulation boards for the application on interior side of historical walls* – Dr. Lukas Fiala, Dr. Miloš Jerman and Dr. Robert Černý

17:25-17:50 *Basic physical, mechanical and hygric properties of renders suitable for historical buildings* – Dr. Robert Cerny, Dr. Vejmelková, Dr. Keppert, Dr. Jerman

17:50-18:15 *The San Giovanni Baptistery in Florence (Italy): characterisation of the serpentine floor* – Dr. Alba Patrizia Santo, Dr. Pecchio-ni, Dr. Garzonio

**17:00-18:15 ROOM 104
DIAGNOSTIC AND MONITORING**

17:00-17:25 *Field microscopy applied to the understanding of the technology and conservation of wall paintings* – Dr. Eugenia Geddes da Filiccia, Dr. Verrì and Dr. Goren

17:25-17:50 *A versatile system for in-situ speckle and thermography-based diagnostics of artifacts* – Dr. Perlini Luca, Dr. Ambrosini and Dr. Daffara

17:50-18:15 *Multispectral Reflectance and UV Fluorescence Microscopy to study painting's cross sections* – Dr. Anna Pelagotti, Dr. Lucilla Pronti, Dr. Emanuela Massa, Dr. Monica Galeotti, Dr. Anna Candida Felici

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**11:00-13:05 ROOM 106
GEOMATICS AND STRUCTURAL MODELLING
FOR CH**

Session Chair: Dr. Grazia Tucci

11:00-11:25 *On the generation of numerical models from point clouds for the analysis of damaged Cultural Heritage* – Dr. Gabriele Bitelli, Dr. Giovanni Castellazzi, Dr. Antonio Maria D'Altri, Dr. Stefano de Miranda, Dr. Alessandro Lambertini and Dr. Ilenia Selvaggi

11:25-11:50 *Duality between BIM and GIS: an example related to the medieval bridge Azzone Visconti* - Dr. Luigi Barazzetti

11:50 - 12:15 *Advanced procedure for documenting and assessment of Cul-tural Heritage: from Laser Scanning to Finite Element* – Dr. Grazia Tucci, Dr. Gianni Bartoli, Dr. Michele Betti, Dr. Valentina Bonora, Dr. Mustafa Korumaz, Dr. Armağan Güleç Korumaz

12:15-12:40 *High precision survey as calibration tool for structural modeling* – Dr. Eva Coisson, Dr. Coisson, Dr. Cotti and Dr. Ottoni

12:40-13:05 *Point clouds turned into finite elements: the umbrella vault of Castel Masegra* – Dr. Luigi Barazzetti, Dr. Brumana, Dr. Della Torre, Dr. Gusmeroli, Dr. Schiantarelli

**11:00-13:05 ROOM 105
ICT AND DIGITAL HERITAGE**

11:00-11:25 *Efficiency and quality raising in preventive archaeology: work in progress of the project ARCHEO 3.0* - Dr. Cristiano Rimini,

Dr. Rescic, Dr. Siano, Dr. Manganelli Del Fà, Dr. Cacciari, Dr. Grosso, Dr. Andreini, Dr. Pocobelli, Dr. Mencaglia, Dr. Tiano, Dr. Fratini

11:25-11:50 *Evaluation of visual descriptors for painting categorization* – Dr. Raquel Bello Cerezo, Dr. Francesco Bianconi

11:50 - 12:15 *Interaction and Information Communication in Virtual Museums* – Dr. Vasileios Komianos, Dr. Anastasios Latos, Dr. Konstantinos Oikonomou

12:15-12:40 *A Multi-Sensory Approach to Cultural Heritage: The Battle of Pavia Exhibition* – Dr. Virginio Cantoni, Dr. Piercarlo Dondi, Dr. Luca Lombardi, Dr. Nahumi Nugrahaningsih, Dr. Marco Porta, Dr. Alessandra Setti

12:40-13:05 *ICT as a tool to foster inclusion: Interactive map to access cultural heritage sites* – Dr. Sebastiano Marconcini

**11:00-13:05 ROOM 104
MATERIALS SCIENCE**

Session Chair: Prof. Rodorico Giorgi

11:00-11:25 *The Efficiency of Calcium Acetate for Consolidation Of Gypsum Model Substrates* – Dr. Andreja Pondelak, Dr. Andrijana Sever Škapin

11:25-11:50 *Cleaning and protection of historic objects-biotechnology and nanotechnology approach* – Dr. Snezana Vucetic, Dr. Jonjava Ranogajec, Dr. Helena Hirschenberger, Dr. John Milan van der Bergh, Dr. Ana Vidaković and Dr. Siniša Markov

11:50 - 12:15 *Detecting metal elements inside the dome of Santa Maria del Fiore in Florence using cosmic ray muons* – Dr. Lorenzo Bonechi, Dr. Blasi, Dr. D'Alessandro, Dr. E Guardincerri, Dr. Vaccaro

12:15-12:40 *Photocatalytic hydroxyapatite-titanium nanocomposites for preventive conservation of marble* – Dr. Enrico Sassoni, Dr. Eros D'Amen, Dr. Norberto Roveri, Dr. George W. Scherer, Dr. Elisa Franzoni

12:40-13:05 *Innovative metagenomic approaches for detection of microbial communities involved in biodeterioration of cultural heritage* – Dr. Duccio Cavalieri, Dr. Brunella Perito

**15:30-16:20 ROOM 106
ENGINEERING**

15:30-15:55 *The 3D virtual reconstruction of an engineering work of the past* – Dr. Luca di Angelo, Dr. Di Stefano, Dr. Pane

15:55-16:20 *Adaptive Exhibition Topologies for Personalized Virtual Museums* - Dr. Vasileios Komianos, Dr. Konstantinos Oikonomou

**15:30-16:20 ROOM 105
ICT AND DIGITAL HERITAGE**

Session Chair: Prof. Francesco Bianconi

15:30-15:55 *Handling huge and complex 3D geometries with Semantic Web technology* - Dr. Peter Bonsma, Dr. Iveta Bonsma, Dr. Anna Elisabetta Ziri, Dr. Ernesto Iadanza, Dr. Federica Maietti, Dr. Marco Medici, Dr. Federico Ferrari, Dr. Rizal Sebastian, Dr. Sander Bruinenberg, Dr. Pedro Martín Leronés

15:55-16:20 *Discrimination of soil texture and contour recognitions during archaeological excavation using Machine Learning* – Dr. Ilaria

**15:30-16:20 ROOM 104
MATERIALS SCIENCE**

Session Chair: Dr. Alessandro Patelli

15:30-15:55 *BIONANOSCULP, an ongoing project in biotechnology applications for preventive conservation of outdoor sculptures* – Dr. Patricia Raquel Moreira, Dr. Silva, Dr. Pullar, Dr. Ben-Arfa, Dr. Abreu, Dr. Henriques, Dr. Pintado and Dr. Vieira

15:55-16:20 *Soluble Salts Extraction With Different Thickeners: Monitoring Of The Effects On Plaster* – Dr. Cristiano Riminesi, Dr. Bertassa, Dr. Bandini, Dr. Felici, Dr. Lanfranchi, Dr. Negrotti, Dr. Scalalone, Dr. Sansonetti

**17:00-18:20 ROOM 106
ENGINEERING**

17:00-17:20 *The Issues of Humanoid Robots with Artificial Creativity in terms of Cultural Heritage and Art* - Dr. Melik Ziya Yakut

17:20-17:40 *A digital reconstruction of the sunken "Villa con ingresso a protiro" in the underwater archaeological site of Baiae* – Dr. Fabio Bruno, Dr. Davidde Petriaggi, Dr. Petriaggi, Dr. Lagudi, Dr. Peluso and Dr. Pas-saro

17:40-18:00 *CAD-CAE methods to support restoration and museum exhibition of bronze statues: the "Principe Ellenistico* – Dr. Michele Bici, Dr. Campana, Dr. Colacicchi and Dr. D'Ercoli

18:00-18:20 *Massive 3D digitization of sculptures: Methodological* – Dr. Umair Shafqat Malik, Dr. Gabriele Guidi

**17:00-18:20 ROOM 105
ICT AND DIGITAL HERITAGE**

17:00-17:20 *3D data integration for the digital reconstruction of cultural heritage monuments* – Dr. Laura Micoli, Dr. Sara Gonizzi Barsanti, Dr. Umair Malik, Dr. Gabriele Guidi

17:20-17:40 - *3D Map Computation from Historical Stereo Photographs of Florence* – Dr. Marco Fantani, Dr. Fabio Bellavia, Dr. Giulio Bassetti, Dr. Fabrizio Argenti, Dr. Carlo Colombo

17:40-18:00 *A data mining approach for indoor air assessment, an alternative tool for cultural heritage conservation* – Dr. Diana Leyva Pernia, Dr. Demeyer, Dr. Schalm, Dr. Anaf

18:00-18:20 *AbC Art blog Conservation Blog Magazine about conservation and restoration of cultural Heritage* - Dr. Eleonora Vittorini Orgeas, Dr. Marta Gómez Ubierna

**17:20-18:20 ROOM 104
DIAGNOSTIC AND MONITORING**

17:20-17:40 *Comparative analysis of two self-portraits by Igor Vasiljev using non-invasive methods* – Dr. Marina Djuric, Dr. Jovanovic, Dr. Velkic

17:40-18:00 *Development of a multi-analytical approach to investigate the fading of eosin in painting matrices* – Dr. Ilaria Degano, Dr. Sabatini, Dr. Giugliano, Dr. Lluveras-Tenorio, Dr. Sokolová, Dr. Thoury and Dr. Colombini

18:00-18:20 *Non-destructive survey of the Claspense library: Collection condition and storage scenario modelling* – Dr. Floriana Coppola, Dr. Natalie Brown, Dr. Alberto Modelli, Dr. Floriana Amicucci, Dr. Matija Strlič

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**12:10-13:25 ROOM 106
ENGINEERING**

Session Chair: Dr. Armando Razionale

12:10-12:35 *An engineering study of a Bronze Age war chariot* – Dr. Angelo Mazzù, Dr. Gambari, Dr. Uberti, Dr. Bodini, Dr. Pasinetti and Dr. Sansoni

12:35-13:00 *Automatic illustration of lithics from 3d scanned models* – Dr. Paolo Neri, Dr. Barone, Dr. Paoli, Dr. Razionale, Dr. De Santis, Dr. Mailland

13:13-13:25 *3D Virtual Reconstruction and Augmented Reality Visualization of Damaged Stone Sculptures* – Dr. Francesco Gherardini, Dr. Mattia Santachiara, Dr. Francesco Leali

**12:35-13:25 ROOM 105
ICT AND DIGITAL HERITAGE**

12:35-13:00 *Museum for All: Wearable Immersive Virtual Tours in Museums for People with Neurodevelopmental Disorders* – Dr. Nicolò Messina, Dr. Vito Matarazzo, Dr. Daniele Occhiuto, Dr. Mirko Gelsomini, Dr. Franca Garzotto

13:10-13:25 *Enhancing cultural tourism by a mixed reality application for outdoor navigation and information browsing using immersive*

devices – Dr. Federico Manuri, Dr. Federico Debandi, Dr. Roberto Iacoviello, Dr. Alberto Messina, Dr. Maurizio Montagnuolo, Dr. Andrea Sanna, Dr. Davide Zappia

**12:10-13:30 ROOM 104
MATERIALS SCIENCE**

12:10-12:30 *Atmospheric pressure plasma as a tool for decontamination and functionalization of wooden surfaces* – Constanze Roth M.A., Dr. Sven Gerullis, Dr. Oliver Beier, Dr. Andreas Pfuch, Dr. Annett Hartmann, Dr. Bernd Grüner

12:30-12:50 *The laser as a tool for the cleaning of Cultural Heritage* – Dr. Laura Bartoli, Dr. Alessandro Zanini

12:50-13:10 *A customised atmospheric pressure plasma jet for conservation requirements* – Dr. Alessandro Patelli, Dr. Verga, Dr. Nodari, Dr. Petrillo, Dr. Delva, Dr. Ugo and Dr. Scopece

13:10-13:30 *Self-Cleaning and Antifouling Nanocomposites for Stone Protection: Properties and Performances Of Stone/Nanomaterial Systems* – Dr. Marco Roveri, Dr. Gherardi, Dr. Goidanich, Dr. Gulotta, Dr. Castelvetto, Dr. Fischer, Dr. Winandy, Dr. Weber and Dr. Toniolo

**15:10-16:30 ROOM 106
ENGINEERING**

Session Chair: Dr. Armando Razionale

15:10-15:30 *Smart Cultural Site: an Interactive 3d Model Accessible to People with Visual Impairment* – Dr. Barbara Leporini, Dr. Rossetti, Dr. Furfari, Dr. Pelagatti and Dr. Quarta

15:30-15:50 *3d Reconstruction Of Rock Paintings: A Cost-Effective Approach Based On Modern Photogrammetry For Rapidly Mapping Archaeological Findings* – Dr. Cristina Castagnetti, Dr. Rossi and Dr. Capra

16:50-16:10 *Advanced Experience of Music through 5G Technologies* – Dr. Adriano Barattè, Dr. Goffredo Haus, Dr. Luca A. Ludovico

16:10-16:30 *The bowed string instruments: acoustic characterization of unique pieces from the Italian lutherie* – Dr. Francesco Lecce, Dr. Salvadori, Dr. G. Bernardini, Dr. P. Bernardini

**15:10-16:30 ROOM 105
ICT AND DIGITAL HERITAGE**

15:10-15:30 *The Digitized Old Books: First Grammar to Teach Romanian Language for Bulgarians* - Dr. Velislava Stoykova

16:30-16:50 *What is this painting about? Experiments on Unsupervised Keyphrases Extraction algorithms* - Dr. Isabella Gagliardi, Dr. Artese

16:50-16:10 *Review on new technologies on Art and Archaeology: The Vesuvian cities* - Dr. Ana Perez Saborido, Dr. Castanò, Dr. Buono

16:10-16:30 *CHEOPS: Cultural Heritage Enhancement Over Cyber-Physical Systems* - Dr. Fa-tema Gabr, Dr. Yasmeen Abdrabou, Dr. Fatema Mohsen, Dr. Amr El Mougy, Dr. Slim Abdennadher

**15:10-16:30 ROOM 104
ENGINEERING**

15:10-15:30 *Assessment of thermo-hygrometric indicators for preventive conservation inside museums: in field monitoring and passive microclimatic control strategies applied to "La Specola" museum of Florence* - Dr. Cristina Carletti, Dr. Fabio Scurpi, Dr. Leone Pierangoli

15:30-15:50 *Performance assessment of a heat and moisture dynamic simulation model in IDA ICE by comparison with WUFI Plus* - Dr. Francesca Frasca, Dr. Cristina Cornaro and Dr. Anna Maria Siani

16:50-16:10 *Artworks in the spotlight: characterization with a multispectral LED dome* - Dr. Mihaela Irina Ciortan, Dr. Dulecha Tinsae, Dr. Giachetti Andrea, Dr. Pintus Ruggero, Dr. Jaspé-Villanueva Alberto and Dr. Gobbetti Enrico

16:10-16:30 *Technological improvements in creating controlled thermohygrometric conditions in sealed microenvironments: the Dew Point Climatic Generator* - Dr. Ottaviano Allegrètti, Dr. Paolo Dionisi-Vici

**17:00-18:15 ROOM 106
ENGINEERING**

17:00-17:25 *Diagnostics and Monitoring The Quality Of Dutch Heritage* - Dr. Karl Kupka

17:25-17:50 *Vulnerability assessment of cultural heritage sites towards flooding events* - Dr. Aitziber Egusquiza, Dr. Alessandra Gandini, Dr. Leire Garmendia, Dr. José-Tomás San-José

17:50-18:15 *3d printing technologies: are their materials safe for conservation treatments?* - Dr. Dafne Cimino, Dr. Rollo, Dr. Zanetti and Dr. Bracco

**17:00-18:15 ROOM 105
ICT AND DIGITAL HERITAGE**

17:00-17:25 *From Alhambra to Digital Projection: Designing a Digital Media Cultural Heritage Project Based on the Transformative Qualities of Islamic Calligraphy*- Dr. M Javad Khajavi

17:25-17:50 *Lab4Dive Mobile Smart Lab for Augmented Archaeological Dives* - Dr. Silvia Zingaretti, Dr. Scaradozzi, Dr. Ciuccioli, Dr. Costa, Dr. Palmieri, Dr. Bruno, Dr. Ritacco, Dr. Cozza, Dr. Raxis and Dr. Tzifopanopoulos

17:50-18:15 *Conoscenza, conservazione e tecnologie: un progetto di ricerca sulle strade dell'Antica Pompei* - Dr. Gianluca Vitaliano, Dr. Alberta Martellone, Dr. Massimo Osanna

**17:00-18:15 ROOM 104
MATERIALS SCIENCE**

17:00-17:25 *Art restoration, protection and education in China - Murals, materials study in humid area of southern China* - Dr. Shan Zeng

17:25-17:50 *Study on Removal of Iron Rust from Paper Objects with Thiourea Dioxide* - Dr. Huiping Xing, Dr. Ouya Ma, Dr. Qi Yong, Dr. Chun Yang, Dr. Xiaolian Chao and Dr. Yuhu Li

17:50-18:15 *Phosphate-based treatments for consolidation of salt-bearing Globigerina limestone* - Dr. Gabriela Graziani, Dr. Sassoni, Dr. Scherer Dr. Franzoni

The program may be modified until the first day of Conference

Please see the site: www.florenceheritage.com and download the official app



POSTER SESSION

may 16 h. 14:30-15:00

may 17 h. 14:30-15:30

may 18 h. 14:30-15:00

Dr. Andrijana Sever Škapin, Dr. Snežana Vučetić, Dr. Andreja Pondelak, Dr. Sabina Kramar, Dr. Luka Škrlep, Dr. Vilma Ducman, Dr. Ana M. Vidaković, Dr. Siniša L. Markov, Dr. Jonjaua Ranogajec: **the use of new consolidants and photocatalytic coating for THE TREATMENT of THE porous mineral substrates**

Dr. Anna Pelagotti, Dr. Francesca Ucheddu, Dr. Emanuela Massa, Dr. Monica Carfagni: Comparing two 3D measurement techniques for documenting painted wooden panels surface deformations on a real test case: **"My-stical Marriage of Saint Catherine" by Renaissance artist Piero di Cosimo**

Dr. Arzak Abdeltawab, Dr. Shrief, Eissa, Dr. Abdel-latif, Dr. Afandy and Dr. Wafika, Wahba: **Non-destructive Analysis and Conservation of Greek Papyrus in Egyptian Museum Cairo, Egypt**

Dr. Chiara Bartalucci, Dr. Francesco Borchi, **Dr. Monica Carfagni**, Dr. Sergio Luzzi, Dr. Lucia Busa: **The Acoustic Design and Requalification Ff An Auditorium In A Church And Of A Historical Theater**

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Dr. Francesco Leccese, Dr. Salvadori, Dr. Feltrin, Dr. Morozzi, Dr. Nieri: **Study on the suitable lighting design of Beato Angelico's artworks displayed at the National Museum of San Matteo in Pisa (Italy)**

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Manzini, Dr. Pojana: **In-situ noninvasive characterization of pigments and alteration products on the masonry altar of S. Maria ad Undas parish church (Idro, Brescia, Italy)**

Dr. Lavinia De Ferri, Dr. Vallotto, Dr. Cianciosi, Dr. Cadamuro, Dr. Bertoldi, Dr. Bisutti, Dr. Geli-chi, Dr. Pojana: **The baby in the amphora and the Niobe: 3D rendering applications for cultural heritage documentation and valorisation purposes**

Dr. Lavinia De Ferri, Dr. Vallotto, Dr. Finocchi, Dr. Tortolato, Dr. Piva, Dr. Pojana: **Virtual tour and historical reconstruction of great hall "Silvio Trentin" in Ca'Dolfìn palace, Venice (Italy).**

Dr. Michele Bici, Dr. Annoscia, Dr. Campana, Dr. De Lellis: **Virtual prototyping of medieval weapons for historical reconstruction of siege scenarios starting from topography and archaeological investigations**

Dr. Moamen Othman, Eltoukhy kamal, Mohamed Abdel-rahman, Wafaa Habib, Basem Gehad, Eman Zidan, Eid Mertah, Ahmed Tarek, Eslam shaeen: **Unearthing the Secrets of Fayum Mummy Portraits Hawara Portraits of young woman (Demos) with her daughter**

Dr. Monica Carfagni, Dr. Lapini, Dr. Calamai, Dr. Argenti: Application of binaural audio techniques for immersive fruition of cultural heritage

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Dr. Raquel Camerini, Dr. David Chelazzi, Dr. Rodorico Giorgi, Dr. Piero Baglioni: **Silica-based nano-composite for the consolidation of earthen masonry**

Dr. Rocco Furferi, Dr. Francesco Buonamici, Dr. Lapo Governi, Dr. Luca Puggelli, Dr. Yary Volpe: **Tactile reproduction of paintings: the experience of the Department of Industrial Engineering of Florence**

Dr. Sara Goidanich, Dr. Petiti, Dr. Toniolo: **Sensors for real-time, on site corrosion monitoring of metallic works of art**

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SIDE EVENTS

WEDNESDAY 16, 2018

PALAZZO VECCHIO, SALA D'ARME

Piazza della Signoria

h.19:00

Civic Reception which will be attended by **Authorities, Institutions, Exhibitors and Conference participants.**



FRIDAY 18, 2018

LA LOGGIA RESTAURANT

Piazzale Michelangelo

h. 20:30

Gala dinner



practical INFORMATION

TAXI

Taxi Firenze 4242 - Tel. +39 055 4242

Taxi Firenze 4390 - Tel. +39 055 43 90

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