

ART2008 - 9th International Conference

May 25-30, 2008 • Jerusalem, Israel

SCIENTIFIC PROGRAM

Monday, May 26

09:00 - 11:15 **Plenary Session**

The Language between Conservator, Curator and Scientist

R. van Langh, The Netherlands

Novel Spectral and High Order Spectral Time-Frequency Nonlinear Technologies for Early Damage Detection

L. Gelman, P. White, O. Drabych, I. Petrunin, UK

11:15 - 11:45 **Coffee Break**

11:45 - 13:45 **Parallel Sessions**

Session I: Spectroscopy: IR, NIR, VIS, UV, Raman Glass, Stone, General

Chair: Y. Shoef, Co-Chair: A. Mašić

Raman Spectroscopy as a Tool for Historical Object Analysis

M. Bloomfield, A. Brooker, R. Tagliapietra, UK

The Study of the Capodimonte Production: An Occasion for the Proposal of a Raman Database for Ancient Porcelains

B. Fabbri, Italy, P. Ricciardi, Italy, France, P. Colombari, France

Raman Microscopy for Art

A. Zoubir, France

Effects of Emissions of Materials for Wrapping, Transportation and Storage on Stained Glass Windows and on Glass Objects in Show Cases in Museums

M. Torge, O. Wilke, D. Brödner, Germany

The “Palombaro” (“Sassi” of Matera, Italy): The Interaction between Water and Construction Materials

A. Guida, I. Mecca, Italy

Inside the Parchment

M. Bicchieri, M. Monti, G. Piantanida, A. Sodo, M.T. Tanasi, Italy

Session II: XRF, SEM, CT, Radiography, PIXE, SY-radiation Stone, Paper and Parchment

Chair: G. Chiari

Determining the Stability and Durability of Archaeological Materials

D. Thickett, S. Lambarth, P. Wyeth, UK (invited)

X-Ray Computed Tomography as a Non-Destructive Tool for Stone Conservation

S. Bugani, M. Camaiti, L. Morselli, Italy, E. Van de Castele, K. Janssens, Belgium, P. Cloetens, France

Micro-Stratigraphy of Ca-Oxalate Coatings: An Attempt to Interpretation

A. Ruggeri, Hungary

Non-Destructive Characterization of Paper as a Support of a Gouache Collection

J. Vodopivec, M. Čerňič, Slovenia

Influence of Restoration Treatments on the Chemical Composition of Historical Iron Gall Inks

T. Wolff, O. Hahn, B. Kanngießner, M. Wilke, W. Malzer Germany

Session III: Imaging Methods

Metal, Stone, Glass

Chair: H. Roemich

Optical Coherence Tomography for Non-Destructive Investigations of Structure of Objects of Art

B.J. Rouba, P. Karaszkiwicz, L. Tyimińska-Widmer, M. Iwanicka, M. Góra, E. Kwiatkowska, P. Targowski, Poland

Thermovision as a Complementary Method for Analyses: Museum Parameters for the Preservation of Glass Objects

E. Greiner-Wronowa, A. Pusoska, J. Wrona, Poland

Analysis of Thermodynamic Balance in the Conservation-Maintenance Process on Bronze Monuments Exposed in the Open: The Case of Francesco Messina's "Cavallo Morente"

M. Bottoni, G. Fabretti, I.M. Marcelli, Italy

Ferruginous Raw Material Sources for Palaeolithic in Poland - Promising Results of Provenance Studies

J. Trąbska, A. Gawel, Poland

Super-Hydrophobic Polymer/Nanoparticle Composites for the Protection of Marble Monuments

P. Manoudis, I. Karapanagiotis, A. Tsakalof, I. Zuburtikudis, C. Panayiotou, Greece

Diagnostic Sonic Investigation on San Giovanni in Laterano Obelisk, Rome Italy, and Tomographic Reconstruction of Same Slides - Project: Technology for Cultural Heritage

C. Cappabianca, V. Luprano, A. Tati, Italy

Session IV: Multi Instrumental Analysis

Paintings, General

Chair: M. Strlic Co-Chair: S. Tager

The Use of Micro-CT in the Study of Archeological Artifacts

R. Baumann, D. Carr Porter, W.B. Seales, USA (invited)

Confocal X-Ray Fluorescence Microscopy for the Analysis of Paintings: Case Study of the Armorer's Shop

C. Bisulca, Italy, A. Woll, J. Mass, N. Ocon, C. Griggs, M. Cushman, USA, T. Wazny, USA, Poland (invited)

Imaging of Elemental Distribution in Archaeometric Objects with 3D Micro X-Ray Fluorescence Spectroscopy

B. Kanngießer, W. Malzer, I. Mantouvalou, Y. Höhn, L. Lühl, M. Pagels, D. Grötzsch, R. Schütz, Germany

Improved Protection of Paintings during Exhibition, Storage and Transit - PROPAINT (EU Project FP6, 044254)

P. Mottner, Germany, T. Grøntoft, E. Dahlin, Norway, M. Odlyha, UK, M. Scharff, Denmark, G. Andrade, Spain, J. Czop, Poland, P. Colombini, Italy

13:45 - 14:45 **Lunch**

14:45 - 16:40 **Parallel Sessions**

Session V: XRF, SEM, CT, Radiography, PIXE, SY-radiation

Glass

Chair: D. Thickett

Degradation Phenomena on Historic Glass: Non-Destructive Characterization by Synchrotron Radiation

H. Roemich, USA, F. Zanini, N. Sodini, Italy, K. Wittstadt, C. Mueller Weinitschke, Germany (invited)

A Quantitative XRF Approach to Solve Historical Discussion on Guala Bicchieri Bishop Limosins Enamels

A. Agostino, M. Aceto, S. Castronovo, Italy

Exploring Russian-American Trade through Comparison of Chemical XRF Signatures of Glass from Colonial Russian Sites in Alaska and the Tal'tsinka Factory in Central Siberia

C. Brackett, J. Kleyman, D. McMahan, USA

In-Situ Analysis of Corrosion Layers of Historical Glass Objects by 3D Micro-XRF

I. Mantouvalou, W. Malzer, T. Wolff, O. Hahn, S. Bretz, B. Kanngießer, Germany, I. Rabin, J. Neguer, Israel, Y. Jolidon, Switzerland

Authentication of 18th Century Creamware

M. Kos, Slovenia

Session VI: Multi Instrumental Analysis

Wall Paintings, Pigments, Leather

Chair: Z. Koren Co-Chair: C. Almog

The Early Use of Prussian Blue in Paintings

J. Bartoll, Germany

The Mural Paintings of Ajanta Caves, Part I: Documentation on Execution Techniques and State of Conservation Condition

A. Giovagnoli, F. Capanna, M. Ioele, A.M. Marcone, E. Ozino-Caligaris, L. Risotto, Italy, M. Singh, India

Less Funds for NDT: What Should We Do Now?

M. Guttmann, Romania

Micro-Analytical Study of the Mordant Gilding Technique in Three Post-Byzantine Churches in Thessalia, Greece

O. Katsibiri, Greece, R.F. Howe, UK

Identifications, Microanalysis, Evaluations and Diagnosis of an Ethnographical Leather Object

A. Bernath, L. Miu, M. Guttmann, Romania

Session VII: XRF, SEM, CT, Radiography, PIXE, SY-radiation

Metal

Chair: A. Adriaens

Application of X-Ray Emission Techniques in Characterisation of Objects of Cultural Heritage

D. Węgrzynek, A. Markowicz, Austria, Poland, E. Chinea-Cano, S. Bamford, G. Buzanich, P. Wobrauschek, Ch. Strelj, M. Griesser, K. Uhlir, Austria (invited)

Micro-SR-XRF and Micro-PIXE Studies for Archaeological Gold Identification

B. Constantinescu, R. Bugoi, V. Cojocar, Romania, R. Simon, D. Grambole, F. Munnik, F. Herrmann, Germany, D. Ceccato, Italy

Non-Destructive Neutron Diffraction Study of Internal Structure of Archaeological Metal Artifacts from Israel

E.N. Caspi, O. Rivin, H. Etedgui, M. Peilstöcker, S. Shilstein, S. Shalev, Israel

The Conservation of Outdoor Bronze Monuments: The Restoration Project for the Monumento ai Mille by Eugenio Baroni (1915) Genoa-Quarto dei Mille

I.M. Marcelli, M. Mercalli, Italy

Analysis of Bronze Artificial Patination by Means of Secondary Ion-Mass Spectrometry

M. Sokhan, E. Beven, D. McPahil, D. Pullen, UK

XRF Analysis of Ribbed Daggers from the M.B.II 'Warrior' Tombs in the Cemetery of Rishon Le-Zion, Israel
S. Shalev, S. Shilstein, Y. Levy, Israel

Session VIII: Laser: Spectra Analysis, Cleaning Wood, Parchment, Paintings, Pigments

Chair: R. Radvan

Speckle and Conservation

E. Miles, A. Roberts, R. Sloggett, N. Tse, Australia

Study of the Effect of Laser Cleaning on Collagenous Structures

M. Simileanu, R. Radvan, L. Miu, M. Giurginca, Romania

Climate Induced Response of Painted Wood Surfaces: Monitoring by Laser Techniques

M. Lukomski, L. Lasyk, L. Bratasz, R. Kozlowski, Poland

Improvements of NDT in Testing Mural Paintings and Bronzes for Restoration

M. Marabelli, G. Nardoni, Italy

Laser Spectrochemical Microanalysis of Archaeological Findings and Pigments from Canvas Paintings

V. Burakov, E. Dovnar-Zapolskaya, V. Kiris, A. Klyachkovskaya, S. Raikov, Belarus

16:40 - 17:00 **Coffee Break**

17:00 - 18:30 **Poster Session**

Tuesday, May 27

09:00 - 11:00 **Plenary Session**

Non-Destructive Analysis and Testing of Museum Objects: An Overview of 5 Years of Research within COST Action G8

A. Adriaens, Belgium

Atmospheric Particles and Preventive Conservation

R. van Grieken, L. Bencs, V. Kontozova, A. Krata, E. Stefaniak, A. Worobiec, Belgium

11:00 - 11:30 **Coffee Break**

11:30 – 13:30 **Parallel Sessions**

Session IX: Spectroscopy: IR, NIR, VIS, UV, Raman Pigments, Binders, Textile

Chair: J. Havermans

Analysis of William Blake's Waterbased Paints on Paper Using Non Invasive Methods

N. Cahaner McManus, Israel (invited)

Determining the Sequence of Crossing Lines Using Fluorescence Microscopy

A. Rosengarten, T. Zhidkov, Israel (invited)

Textile Materials: Reference Standards for the Characterisation Using Multispectral Analyses

S. Conti, A. Aldrovandi, Italy, A. Keller, Germany

Painting Syncretism: A Non-Destructive Analysis of the Badiano Codex

*S. Zetina, J.L. Ruvalcaba, T. Falcón, E. Hernández, C. González, E. Arroyo, M. López
Cáceres, Mexico*

Session X: XRF, SEM, CT, Radiography, PIXE, SY-radiation

Pigments

Chair: O. Hahn

A Diagnostic Analysis of an Outdoor Fresco: The Case of "Santa Maria dei Battuti" of the Conegliano Cathedral

V. Fassina, M. Mazza, I. Carocci, S. Ridolfi, Italy

Laboratory Powder X-Ray Microdiffraction - The Use for Pigments and Secondary Salts Identification in Frescoes

S. Švarcová, E. Kotulanová, D. Hradil, P. Bezdička, Czech Republic

Heat-Induced Modification of Marine Shells Used as Personal Ornaments at the Prehistoric Site of Franchthi Cave, Greece: First Results of a Multianalytical Approach

K. Lange, France, Germany, C. Perlès, M. Vanhaeren, I. Reiche, France

Conservation Treatment and Authentication of Paintings with Handheld XRF Analyzers

J.M. Passafiume, Canada, J. Kleyman, USA

Evidence of Chemical Reactivity Using Scanning Electron Microscopy of Seventeenth-Century Oil Paintings

A. van Loon, P. Noble, J.J. Boon, The Netherlands

An Interdisciplinary, Non-Invasive Study on Ten Manuscripts Coming from the San Colombano Abbey in Bobbio

M. Aceto, A. Agostino, V. Bianco, F. Crivello, A. Giaccaria, F. Porticelli, Italy

Session XI: Chemical and Bio Analysis and Investigation

Building, Stone, Binders, Dyes

Chair: P. Ravines

A Microbiological Survey of the Etruscan Mercareccia Tomb (Italy): Contribution of Microorganisms to Deterioration and Restoration

A.R. Sprocati, C. Alisi, F. Tasso, E. Vedovato, N. Barbabietola, C. Cremisini, Italy

Tryptic Peptide Analysis of Protein Binders in Works of Art by Liquid Chromatography - Tandem Mass Spectrometry

W. Fremout, M. Dhaenens, S. Saverwyns, J. Sanyova, P. Vandenabeele, D. Deforce, L. Moens, Belgium

An Investigation into Biodeterioration Caused by Microbial Communities Colonising Artworks in Three Maltese Palaeo-Christian Catacombs

G. Zammit, Malta, Italy, P. Psaila, Malta, P. Albertano, Italy

Analysis of Art Objects Using Mass Spectrometry

S. Kuckova, R. Hynek, M. Kodicek, Czech Republic

Monitoring the Removal of Conservation Substances and Material Quality for Radiocarbon Dating Using Infrared Spectroscopy

E. Boaretto, E. Mintz, Israel

State of Conservation in a Rupestrian Church - Case Study the Stone Ravens, Romania

I. Gomoiu, D. Mohanu, I. Mohanu, Romania

13:30 - 14:30 **Lunch**

14:30 - 16:30 **Parallel Sessions**

Session XII: Spectroscopy: IR, NIR, VIS, UV, Raman

Paintings and Wall Paintings

Chair: A. Burnstock

Monitoring Cleaning Procedures through Non-Invasive Measurements: A Case Study

G. De Cesare, A. Daveri, K. Kahrim, C. Miliani, Italy

Infrared Methods in Noninvasive Inspection of Artwork

D. Gavrilov, C. Ibarra-Castanedo, E. Maeva, O. Grube, X. Maldague, R. Maev, Canada

Painting Layers on Stone: Study of an Early Middle Ages High-Relief

A. Sansonetti, R. Bugini, D. Biondelli, J. Striova, M. Colella, Italy

Hyper-Spectral Imaging System with Embedded Spectral Segmentation and Classification Algorithms for the Non-Destructive Analysis of Artworks and Manuscripts: An Application in Paintings by El Greco

C. Balas, G. Antonopoulos, G. Epitropou, G. Tsairis, K. Argyriadou, A. Georgakilas, N. Hadjinicolaou, Greece

Integrated Hyperspectral and Time Resolved Fluorescence Imaging Combined with Statistical Data Analysis: Diagnostic Investigations of Wall Paintings

D. Comelli, A. Nevin, D. Gulotta, L. Toniolo, G. Valentini, R. Cubeddu, Italy

XVI Century Colonial Panel Paintings from New Spain: Material Reference Standards and Non-Destructive Analysis for Mexican Retablos

E. Arroyo, S. Zetina, E. Hernández, T. Falcón, J.L. Ruvalcaba, L. Mancilla, A. Nieto, Mexico

Session XIII: XRF, SEM, CT, Radiography, PIXE, SY-radiation

General

Chair: R. van Langh

The Use of Radiological Techniques in Archeology

R. Bude, USA (invited)

XRF Analysis in Archaeometry with Handheld Analyzer - Measurement Strategies and Data Interpretation

S. Piorek, USA

Portable X-Ray in the Service of Art

R. Pincu, O. Kleinberger, Israel

Journeys of Our Ancestors: Conservation Science and Collaborative Contributions to Archaeological Research and Material Culture Interpretation

C. O'Grady, N. Odegaard, E.C. Adams, USA

Benefits of Applying Micro X-Ray Diffraction to the Characterization of Artwork

C. Cardell, A. Yebra, P. Alvarez-Lloret, A. Rodriguez-Navarro, Spain

Session XIV: Multi Instrumental Analysis

Glass, Metal, General, Photo

Chair: B. Brunetti

Portable Non-Invasive XRD/XRF Instrument: A New Way of Looking at Objects Surface

G. Chiari, P. Sarrazin, USA

An Electrical Resistance Monitor Study of the Post-Excavation Corrosion of Archaeological Iron

E. Kapatou, S.B. Lyon, UK

A Multi-Disciplinary Approach to the Study of an Assemblage of Copper Based Finds Assigned to the Prehistory and Proto-History of Fucino, Abruzzo, Italy

M.L. Mascelloni, G. Cerichelli, S. Ridolfi, Italy

Microanalysis Characterization of Ancient Stained Glasses

S. Bruni, G. Maino, S. Massari, L. Roversi, Italy

Tempering Effect in Ceramics Chemical Analysis by INAA

C.S. Munita, R.G. Toyota, P.T.M. Oliveira, E.G. Neves, C.C. Demartini, Brazil

Two Non-Invasive Techniques for the Study of the Surface of Cultural Heritage Objects: Optical Measurement of Micro-Roughness and Backscattering Spectro-Colorimetry

J.J. Ezrati, France

16:30 - 16:50 **Coffee Break**

16:50 - 19:00 **Session XV: Dead Sea Scrolls**

Chair: M. Broshi

The Dead Sea Scrolls - Past and Future

M. Broshi, Israel (invited)

Non-Destructive Investigation of the Dead Sea Scrolls

O. Hahn, T. Wolff, B. Kanngießer, W. Malzer, I. Mantouvalou, U. Schade, G. Weinberg, Germany, I. Rabin, Germany, Israel, A. Mašić, Germany, Italy (invited)

Deterioration of Dead Sea Scrolls Investigated by Solid State and Unilateral NMR; Effects of Solvents on Collagen-Water System

A. Mašić, M. Chierotti, R. Gobetto, G. Martra, S. Coluccia, Italy, I. Rabin, Israel

Features-of-Interest on Art Objects: Re-location and Micromanipulation for Multiple-Instrument Analyses

U. Admon, Israel, I. Rabin, A. Masic, Germany, E. Chinea-Cano, Austria, D. Wegrzynek, Austria, Poland (invited)

Wednesday, May 28

09:00 - 11:00 **Plenary Session**

MOLAB, A Mobile Facility for Non-Destructive *In-Situ* Studies of the European Cultural Heritage

B.G. Brunetti, Italy

COST D42 - ENVIART: A European Network in Conservation Research

J. Havermans, The Netherlands, A. Adriaens, Belgium

11:00 - 11:30 **Coffee Break**

11:30 – 13:40 **Parallel Sessions**

Session XVI: Spectroscopy and XRF, SEM, CT, Radiography, PIXE, SY-radiation

Paper and Photo

Chair: A.L. Dupont Co-Chair: H. Rimon

Optical and Surface Metrology to Study Cultural Heritage: Confocal Topometry Applied to the Surface Study of Photographic Images

P. Ravines, C.M. Wichern, J. Chen, USA (invited)

NIR Spectroscopy and Chemometrics for Non-Destructive Characterisation of Historical Paper

M. Strlič, T. Trafela, UK, D. Lichtblau, Germany, J. Kolar, Slovenia (invited)

Quantitative Hyperspectral Imaging of Historical Documents: Technique and Applications

R. Padoan, Th.A.G. Steemers, M.E. Klein, B.J. Aalderink, G. de Bruin, The Netherlands

Scientific Methodologies to Identify Art Prints

P. Cassinelli, L. Marras, C. Micheli, A. Pelagotti, Italy

A New Scientific Methodology for Provenancing and Authentication of 20th Century Photographs: Non-Destructive Approach

D.C. Stulik, A. Kaplan, USA

Session XVII: Imaging Methods

General and Painting

Chair: A. Stern

Modern Non-Destructive Physical Methods for Paintings Testing and Evaluation

R.Gr. Maev, D. Gavrilov, A. Maeva, Canada, I. Vodyanoy, UK (invited)

European Technical Committee 346 - Conservation of Cultural Property - Updating of the Activity After a Three Year Period

V. Fassina, Italy (invited)

Non-Destructive Analyses for Modern Paintings: The Russian Avant-Garde Case

D. Pitzalis, I. Cassan, L. Thomas, France, A. Gianoncelli, Italy

Acoustic Emission Sensor for Direct Tracing of Damage in Historic Objects

Ł. Bratasz, S. Jakieta, M. Łukomski, R. Kozłowski, Poland

A Comparison of Light Microscopy Techniques with Scanning Electron Microscopy for Imaging the Surface Cleaning of Paintings

K.J. van den Berg, M. Daudin, I. Joosten, B. Wei, The Netherlands, R. Morrison, A. Burnstock, UK

13:40 – 14:40 **Lunch**

14:40 – 16:50 **Parallel Sessions**

Session XVIII: Imaging Methods and Monitoring Buildings

Chair: R. van Grieken

Monitoring of Moisture Content in Brickwork with Infrared Thermograph Method
J. Zach, J. Brozovsky, I. Sedlarova, Czech Republic

Investigation of Heritage Building Materials by Non-Destructive Methods
E. Grinzato, P. Bison, Italy, A. Tavukcuoglu, E.N. Caner-Saltık, Turkey

Integrated Surveys for the Analysis of the Deterioration in the Crypt of the Abbey of Montecorona - Italy
R. Cataldo, S. Siviero, G. Leucci, R. Pagiotti, P. Angelini, Italy

An Art in the Yard: The Stucco Forte. Historical Manufacturing Techniques and Methods of Conservation: The Shipyard Study of the SS. Annuziata's Church in Caiazzo (Italy)
M. Montuori, Italy

Monitoring and Prediction of Cultural Heritage Artifacts Conservation Status
R. Radvan, D. Ene, W. Maracineanu, M. Simileanu, C. Deciu, L. Angheluta, J. Striber, V. Dragomir, Romania

Understanding the Decay of 14th Century Magnesian Limestone Carvings in Yorkshire, UK
S.E. Pinchin, T. Curteis, D. Odgers, UK, E. Doehne, USA

Note on the NDT vs DT sessions (XIX & XX)

Non-destructive analytical techniques are familiar in the fields of physics and chemistry and are diffused throughout all the fields of material science. In recent years, spurred on by the minimal interventionist approach they have found an increasingly wide application in the study, preservation and conservation of objects of cultural heritage and are challenging conventional, destructive analytical techniques. As we have seen non destructive testing methods are now well established, although they do not negate the use of destructive techniques.

We think the time is ripe for an attempt to critically evaluate the possibilities, drawbacks and limitations offered by both non-destructive and conventional analytical techniques. In this special session we want to reach a better understanding of the applicability range of the two approaches by asking, for example:

- * *What results can we expect these techniques to deliver?*
- * *What are their respective limitations?*
- * *What are the advantages and disadvantages connected with each approach?*

The classifications "non-destructive" and "non-invasive" are concepts generated in contexts unrelated to that of cultural heritage. When transposed to our context, these terms acquire a certain ambiguity. The introductory lecture will clarify the inferred meaning of the terminology and address the issue of whether the employment of a non-destructive technique is always preferable to the use of a conventional technique. The following presentations will demonstrate how specific questions may be designed and answered by different investigative techniques and compare the nature of the answers delivered. By this we hope to gain greater insight into the capabilities and bias of the different analytical techniques we have at our disposal. The round table discussion will be dedicated to an important issue: how to choose the most appropriate technique to answer a specific question.

Session XIX: NDT vs. DT I

Chair: S. Weiner

Beauty is Only Skin Deep: Where NDT Can be a Compromise Too Far?

M.J. Ponting, UK (invited)

Analysis of Inorganic Materials from Paintings and Watercolours by Paul Cézanne from the Courtauld Gallery Using Two Methods of Non-Invasive Portable XRF with Light Microscopy and SEM/EDX Spectroscopy

A. Burnstock, E. Reissner, C. Richardson, UK, K.J. van den Berg, The Netherlands

Determination of Strontium Concentrations in Calcium-Based Grounds with XRF & ICP-MS

C. Namowicz, M. Walton, K. Trentelman, USA

Non-Destructive vs. Microchemical Analyses: The Case of Dyes and Pigments

Z.C. Koren, Israel (invited)

Historical, Microanalytical Evidences and Limits of Non-Invasive Technologies in Studying Gildings on 16th C Wall Paintings

G. Cavallo, M. Verda, Switzerland

16:50 - 17:10 **Coffee Break**

17:10- 18:20 Session XX: NDT vs DT II

Chair: I. Narkiss

Infrared Spectroscopic Analysis of Materials in Conservation and Archaeology

S. Weiner, Israel (invited)

Non-Invasive Mid-Infrared Fibre Optic Reflectance Spectroscopy Analysis of Painted Glass Magic Lantern Plates

R. Ploeger, D. Scalarone, O. Chiantore, Italy

Round Table Discussion

18:20 - 18:30 Closing Remarks

A. Notea

POSTERS

Imaging Methods

1. **Determining the Strength of Solid Burnt Bricks in Historical Structures**
J. Brozovsky, J. Zach, J. Brozovsky, Jr., Czech Republic
2. **An Assessment of the Condition of Timber Structures**
J. Brozovsky, J. Brozovsky, Jr., J. Zach, Czech Republic
3. **Non-Destructive Investigations of Historical Plaster and Stonework in San Giovanni dei Napoletani Church in Palermo (Italy): Evaluation of the Exchange between Architecture and Environment by Thermography and Radar Survey**
R. Ollig, Germany, G.M. Ventimiglia, Italy
4. **Pre-Cleaning Identification of Muskets from Akko 1 Shipwreck by NDT and DT Methods**
D. Cvikel, J.J. Gottlieb, Y. Kahanov, A. Notea, Y. Shoef, Y. Shoef, G. Shoef, Israel
5. **Pre-Cleaning Identification of Anchors from Tantura F Shipwreck by NDT and DT Methods**
O. Barkai, J.J. Gottlieb, Y. Kahanov, A. Notea, Y. Shoef, Y. Shoef, G. Shoef, Israel
6. **Determination of Thermal Technical Properties of Organic Thermal Insulating Materials Built-in to Historical Buildings**
J. Zach, J. Brozovsky, I. Sedlarova, Czech Republic

Spectroscopy: IR, NIR, VIS UV Raman

7. **Characterization of Natural Aged Wood from Painting Supports by Spectroscopical Methods in the View of Diagnosis and Conservation**
C.M. Popescu, C. Vasile, Romania, C.M. Tibirna, Canada
8. **Analytical Investigation of the Painting Techniques Used in Icons of the Cretan School of Iconography**
I. Karapanagiotis, Sister Daniilia, E. Minopoulou, D. Mantzouris, S. Stassinopoulos, Greece, S. Wei, E. Rosenberg, Austria
9. **Dead Sea Scrolls: Materials Characterisation by Means of IR-ERS and Synchrotron Based μ -FTIR Spectroscopy**
A. Mašić, M. Ortolani, S. Coluccia, Italy, U. Schade, O. Hahn, Germany, I. Rabin, Israel
10. **Vibrational Study on Carbon Dioxide Sieved into the Sodalite β -Cage of Lapis Lazuli**
C. Miliani, A. Daveri, A. Sgamellotti, B.G. Brunetti, Italy
11. **UV-Vis-NIR Reflectance Spectroscopy of Red Lakes in Paintings**
C. Bisulca, M. Picollo, M. Bacci, D. Kunzelman, Italy

12. **The Influence of Organic Solvents on the Mechanical Properties of Alkyd and Oil Paint**
O. Fuesers, S. Zumbühl, Switzerland
13. **Ecclesiastical Garments of Mount Athos: History, Typology and Colouring Matters**
I. Karapanagiotis, Greece, C. Karydis, UK

XRF, SEM, CT, Radiography, PIXE, SY-radiation

14. **Examination of an Archaeological Attic Ceramic Fragment by 3D Micro PIXE - a New Analytical Technique for Depth Resolved Elemental Analysis**
R. Schütz, W. Malzer, B. Kanngießer, Germany, A.G. Karydas, D. Sokaras, Ch. Zarkadas, E. Aloupi, Greece, N. Grlj, P. Pelicon, M. Žitnik, Slovenia
15. **The Identification of the Lead White in the Mediaeval Polish Painting of the School of Gdańsk Pomerania by Means of INAA**
J. Olszewska-Świetlik, E. Pańczyk, L. Waliś, Poland
16. **Non-Destructive XRF Analysis of Pigments in a 15th Century Panel Painting**
A. Križnar, M.V. Muñoz, F. de la Paz, M.A. Respaldiza, M. Vega, Spain
17. **X-Ray Microtomography as an Imaging Tool in Cultural Heritage Studies**
E. Van de Castele, V. Van der Linden, K. Janssens, Belgium, S. Bugani, Italy
18. **Using XRF for Semi-Quantitative Analysis in a Study of Delaminating Paint**
Y. Maor, A. Murray, Canada, B. Kaiser, USA
19. **Study of the Quaternary Alloys in the Cast of the Equestrian Statue of Bartolomeo Colleoni by Andrea Del Verrocchio (Venice 1480) Availing of EDXRF Systems**
L. Morigi, S. Ridolfi, Italy
20. **Light Element Mapping by μ XRF Spectrometry**
A. Gross, R. Tagle, Germany
21. **Absolute Measurement of the Coating Thickness with the Use of ED XRF Spectrometer**
A.S. Serebryakov, V.I. Koudryashov, V.Yu. Toropov, I.I. Malykh, A.P. Moroz, Russia
22. **The Characterization of Verdigris Pigment in Historic Documents - Study of Degradation**
C. Augusto, C. Casanova, S. Sequeira, E.J. Cabrita, Portugal
23. **The Sanctuary of Hera at River Sele Mouth: Non-Destructive Analysis of Archaeological Finds**
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