



E-MRS 2007 Spring Meeting  
Strasbourg, France - May 28<sup>th</sup> to June 1<sup>st</sup>, 2007

## WORKSHOP

**Science & Technology of Cultural Heritage Materials : Art  
Conservation and Restoration**

Symposium Organizers:

**Michel MENU**, C2RMF-UMR 171, Palais du Louvre, Paris, France

**Giacomo CHIARI**, Getty Conservation Institute, Los Angeles, USA

**Costas FOTAKIS**, FORTH, Heraklion, Crete, Greece

**Giusepina PADELETTI**, CNR ISMN, Roma, Italy

**Michael STUKE**, MPI, Göttingen, Germany

*Proceedings to be published in Applied Physics A*



## Monday, May 28, 2007

- 14:00 OPENING**
- LASER**
- S1-1 14:10 **Laser Interactions with Molecular Substrates of Cultural Heritage Materials**  
Marta Castillejo Instituto de Química Física Rocasolano, CSIC, Serrano 119, 28006 Madrid, Spain
- S1-2 14:40 **Optical Coherence Tomography (OCT) in Art Diagnostics and Restoration**  
Piotr Targowski Institute of Physics, Nicolaus Copernicus University, Grudziadzka 5, 87-100 Torun, Poland
- S1-3 15:10
- S1-4 15:30 **Mechanistic studies of the laser assisted removal of synthetic conservation materials from wall paintings**  
P. Pouli[1], A. Nevin[1,2], A. Andreotti[3], P. Colombini[3] and C. Fotakis[1,4] [1]Institute of Electronic Structure and Lasers (IESL), Foundation for Research and Technology-Hellas (FORTH), PoBox 1385, Heraklion, Crete, 71110, Greece [2]Courtauld Institute of Art, University of London, Somerset House, Strand, London, WC2R 0RN, UK [3]Dipartimento di Chimica e Chimica Industriale, Università di Pisa, via Risorgimento 35, 56126 Pisa, Italy [4]Department of Physics, University of Crete, Greece
- S1-5 15:30 **Cleaning of artificially soiled paper with 532-nm nanosecond laser radiation**  
Jörg Krüger, Simone Pentzien, Andrea Conradi Division VI.4 Surface Technologies, Federal Institute for Materials Research and Testing (BAM), Unter den Eichen 87, 12205 Berlin, Germany
- 16:10 BREAK**
- SYNCHROTRON AND IBA**
- S2-1 16:40 **New approaches for investigating paint multilayer systems**  
K. Janssens, G. Van der Snickt, W. De Nolf, J. Jaroszewics, B. Vekemans Department of Chemistry, University of Antwerp, Belgium
- S2-2 17:10 **FIRST APPLICATIONS OF SYNCHROTRON MICRO-ANALYTICAL METHODS TO THE STUDY OF VARNISHES OF ANCIENT MUSICAL INSTRUMENTS**  
Jean-Philippe Echard, Laboratoire de Recherche et de Restauration, Musée de la Musique, Cité de la Musique, 221 Av. Jean Jaurès, 75019 Paris Loïc Bertrand, Synchrotron SOLEIL, Saint-Aubin, BP 48, 91192 Gif-sur-Yvette cedex Marine Cotte, ESRF, ID21, BP 220, 38043 Grenoble Cedex Eric Dooryhée, Institut Néel, CNRS UPR2940, 25, rue des Martyrs – Bâtiment F- BP 166 – 38042 Grenoble, cedex 9
- S2-3 17:30 **Calcium in ancient glazes and glasses: a XAFS study.**  
J.P. Veiga, CENIMAT, Materials Science Dept., New University of Lisbon, Quinta da Torre, 2829-516 Caparica, Portugal. M.O. Figueiredo, Crystallography & Miner. Centre, IICT, and INETI / IGM, Dept. Min. Resources, Apt. 7586, 2721-866 Alfragide, & CENIMAT, Materials Sci. Dept., Fac. Sci. Technology, New Univ. of Lisbon, 2829-516 Caparica, Portugal.

Tuesday, May 29, 2007

**METAL**

S3-1 09:00 **Investigation on the corrosion process of pale green natural patinas of outdoor bronze monuments**  
Luc Robbiola Service des Microscopies Electroniques, ENSCP, 11 rue P&M Curie, 75005 Paris, France. Email address: luc-robbiola@enscp.fr

S3-2 09:30 **A new casting technique for the restoration of lead pipes in old organs**  
W. Skorupa, M. Rossner\*, C. Neelmeijer, F. Eichhorn, J.v. Borany Institute of Ion Beam Physics and Materials Research, \*Institute of Safety Research Forschungszentrum Dresden-Rossendorf, Dresden, Germany H. Werner and A.-C. Eule Herrmann Eule Orgelbau GmbH, Bautzen, Germany T. Schucknecht, V. Klemm and D. Rafaja Institute of Materials Science, TU Bergakademie Freiberg, Germany

09:50 **BREAK**

**CERAMICS**

S4- 1 10:20 **Diagenesis of Palaeolithic bone and reindeer antler. Multianalytical study by means of XRD, FT-IR, SEM, TEM, micro-PIXE/PIGE analysis**  
Céline Chadefaux, Colette Vignaud, Michel Menu and Ina Reiche UMR 171 CNRS - Laboratoire du Centre de recherche et de restauration des musées de France (C2RMF) Palais du Louvre, 14 quai François Mitterrand, 75001 Paris, France

S4- 2 10:40 **Applications of advanced analytical techniques for the conservation of archaeological metallic and ceramic artefacts and the recovering of ancient manufacturing techniques**  
M.P. Casaletto1, F. Caruso1, F.M. Mingoia1, M.L. Testa1, G.M. Ingo2, T. De Caro2, C. Riccucci2 Istituto per lo Studio dei Materiali Nanostrutturati, Consiglio Nazionale delle Ricerche, 1 Via Ugo La Malfa 153, 90146 Palermo (Italia) 2 CP 10, 00016 Monterotondo Stazione, Roma (Italia)

S4- 3 11:00 **In-situ study of Renaissance lusterwares by Mastro Giorgio Andreoli through a multi-technique non-invasive approach.**  
L. Burgio, G. Martin Victoria and Albert Museum, Science Section, South Kensington, London SW7 2RL, UK. , Miliani, A. Sgamellotti CNR-ISTM Sez. Perugia and Centre SMAArt, via Elce di sotto 8, 06123, Perugia, I F. Rosi, C. Ricci, F. Presciutti, A.Cosentino, B.G. Brunetti Centre SMAArt and Department of Chemistry, University of Perugia, via Elce di sotto 8, 06123, Perugia, I.

S4- 4 11:20 **A new model for the simulation of the optical properties of lustres**  
Vincent REILLON (1), Christine ANDRAUD (1), Serge BERTHIER (2) 1-Université Pierre et Marie Curie – Paris 6, UMR 75 88, INSP, 140 rue de Lourmel, F-75015, Paris, France; 2-Université Denis Diderot – Paris 7, UMR 75 88, INSP, 140 rue de Lourmel, F-75015, Paris, France; 1,2-CNRS, UMR 75 88, INSP, 140 rue de Lourmel, F-75015, Paris, France

S4- 5 11:40 **Physico-chemical analyses of Hispano-Moresque lustred ceramic: a precursor for Italian majolica?**  
Delhia Chabanne1, Anne Bouquillon1, Marc Aucouturier1, X. Dectot2, P. Fermo, Giuseppina Padeletti3 1 C2RMF (CNRS UMR171), Palais du Louvre, 75001 Paris, France 2 Musée national du Moyen age, 75005 Paris, France 3 ISMN-CNR, 00016 Monterotondo, Roma, Italy

12:00 **LUNCH**

14:00 **Poster Session 1**

S/P1-1 **Interaction of femtosecond laser pulses with tempera paints**  
Solenne Gaspard 1, Mohamed Oujja 1, Roy Hesterman 2, Pablo Moreno 3, Cruz Méndez 3, Ana García 3, Concepción Domingo 4, Marta Castillejo 1 1 Instituto de Química Física Rocasolano, CSIC, Madrid, Spain 2 Hesterman Restauratie Atelier voor Schilderijen, Singelstraat 33,1398 BM Muiden, The Netherlands 3 Servicio Láser, Universidad de Salamanca, Plaza de la Merced s/n, 37008 Salamanca, Spain 4 Instituto de Estructura de la Materia, CSIC, Serrano 123, 28006 Madrid, Spain

S/P1-2 **VUV LASER CLEANING OF FUNGUS FROM HELLENIC ARCHAEOLOGICAL STONES**  
E. Sarantopoulou, Z. Kollia, A. C. Cefalas, National Hellenic Research Foundation, TPCI, 48 Vassileos Constantinou Avenue, Athens 11635, Greece I.Gomoiu, Institute of Biology, Romanian Academy, Romania

S/P1-3 **Investigation of the color changes of historical Gotland sandstone caused by the laser surface cleaning**  
Marta Jasinska (1), Jadwiga W. Lukaszewicz (2), Anna Nowak (2), Gerard Sliwinski (1) (1) Polish Academy of Sciences - IFFM, Fiszerka St. 14, 80-231 Gdansk, Poland (2) Faculty of Fine Arts, N. Copernicus University, Sienkiewicza 30/32, 87-100 Torun, Poland

S/P1-4 **Excimer laser irradiation of polymeric consolidant resin: study of cones formation and evolution and study of chemical bondings changes.**  
Romina Belli, Antonio Miotello, Paolo Mosaner, Laura Toniutti, and Damiano Avi Department of Physics, University of Trento, 38050 Povo, Trento, Italy

S/P1-5 **Monitoring of aging processes and effects of KrF laser surface treatment in varnish layers by LIBS, FTIR and micro-Raman spectroscopy**  
Zs. Márton1, G. Makkai1, É. Galambos2, I. Bóna3, K. Jébert2, J. Sándorné Kovács4 1University of Pécs, Institute of Physics 7624 Pécs, Ifjúság útja 6. 2Museum of Fine Arts, Budapest 1146 Budapest, Dózsa György út 41. 3 University of Fine Arts 1062 Budapest, Andrásy út 69-71. 4Research Institute of the Hungarian National Police Headquarters (ORFK). 1087 Budapest, Mosonyi utca 7.

S/P1-6 **MULTIFUNCTIONAL ENCODING SYSTEM FOR ASSESSMENT OF CULTURAL HERITAGE**  
V Tornari1,W Osten2, G. Marc3, G. M. Hustinx4,M. Doulgeridis5, S Hackney6 1. Foundation for Research and Technology-Hellas (FORTH), Institute of Electronic Structure and Laser (IESL), Vassilika Vouton-Voutes, 71110 Heraklion, Crete, Greece. 2. ITO Institut für Technische Optik, Universität Stuttgart, Pfaffenwaldring 9, 70569 Stuttgart, Germany. 3. Centre Spatial de Liège, Liege Science Park, 4031, Angleur Liege 4. OPTRION, Spatiopôle – Rue des Chasseurs Ardennais, B-4031 Liege 5. Conservation Department, National Gallery – Alexandros Soutzos Museum, 1 Michalacopoulou Street, 11601, Athens, Greece. 6. Conservation Department, Tate, Millbank, London SW1P 4RG, UK.

- S/P1-7 **Wavelength and pulse duration effects in the laser assisted removal of corrosion layers from historic iron alloys**  
P. Pouli, C. Fotakis Institute of Electronic Structure and Lasers (IESL), Foundation for Research and Technology-Hellas (FORTH), PoBox 1385, Heraklion, Crete, 71110, Greece Tel: +30 2810 391870, Fax: +30 2810 391318, Email: ppouli@iesl.forth.gr A. Siatou, V. Argyropoulos Technological Educational Institute of Athens, Dept. of Conservation of Antiquities & Works of Art, Ag. Spyridonos str., GR 122 10 Aigaleo, Greece
- S/P1-8 **Micro-LIBS in the field of art conservation**  
I. Osticioli (1), M. Wolf(2), D. Anglos(3), C. Fotakis(3) 1) University of Florence, Chemistry Department, Via della Lastruccia n. 3, I-50019, Sesto Fiorentino (Fi), Italy. 2) Fachhochschule Münster, Fachbereich Chemieingenieurwesen, Stegerwaldstrasse 39 D-48565, Steinfurt, Germany. 3) Foundation for Research and Technology-Ellas (FO.R.T.H). Institute of Electronic Structure and Laser (I.E.S.L), P.O.BOX 1527, Vassilika Vouton, 71110, Heraklion, Crete, Greece.
- S/P1-9 **Extremely sensible atomic and molecular techniques for historic artefacts ascription**  
A.V. Kliachkouskaya, M.V. Belkov, S.V. Gaponenko, E.A. Ershov-Pavlov, N.M. Kozhukh, E.V. Muravitskaya, E.M. Torkailo, V.A. Rosantsev
- S/P1-10 **Combined in-situ use of LIBS and micro-XRF spectrometers for the characterization of archaeological metal objects**  
A. Giakoumaki 1,4, V. Kantarelou 2, Ch. Zarkadas 2, M. Giannoulaki 3, A. G. Karydas 2, D. Anglos 1, V. Argyropoulos 3 1) Institute of Electronic Structure and Laser, Foundation for Research and Technology – Hellas (IESL-FORTH), P.O. Box 1385, 71110 Heraklion, Crete, Greece 2) Laboratory for Material Analysis, Institute of Nuclear Physics, N.C.S.R Demokritos, 153 10 Aghia Paraskevi, Athens, Greece 3) Department of Conservation of Antiquities & Works of Art, Technological Educational Institution of Athens, Ag. Spyridonos, 12210, Aigaleo, Greece 4) Department of Materials Science and Technology, University of Crete, P.O.Box 2208, 71003 Heraklion, Crete, Greece
- S/P1-11 **Laboratory micro-techniques: an example of support for art work authentication**  
E. Bontempi1, D. Benedetti1, A. Massardi2, L.E. Depero1 1 Chemistry for Technologies Laboratory, University of Brescia (Italy) 2 Restauro Opere d'Arte, vicolo al Lago, 8 Gardone Riviera, Brescia (Italy)
- S/P1-12 **The corrosion behaviour of G85 bronze exposed to acid rain in stagnant condition**  
E. Bernardi1, C. Chiavari2, C. Martini2, L. Morselli1 1 Dipartimento di Chimica Industriale e dei Materiali, Università di Bologna - Via Risorgimento 4, 40136 Bologna (Italy) 2 Dipartimento di Scienze dei Metalli, Elettrochimica e Tecniche Chimiche, Università di Bologna - Via Risorgimento 4, 40136 Bologna (Italy)
- S/P1-13 **CONSERVATION METHODS AND MATERIALS FOR INHIBITING COPPER CYCLIC CORROSION**  
G.M. Ingo, ISMN-CNR, CP 10, 00016 Monterotondo Stazione, Rome (Italy), M. Pia Casaletto, ISMN-CNR, CP 10, 00016 Monterotondo Stazione, Rome (Italy) T. de Caro, ISMN-CNR, CP 10, 00016 Monterotondo Stazione, Rome (Italy), C. Riccucci, ISMN-CNR, CP 10, 00016 Monterotondo Stazione, Rome (Italy)
- S/P1-14 **COMBINED USE OF SEM-EDS, DTA-TG, XRD AND OM TECHNIQUES FOR THE CHARACTERIZATION OF THE CORROSION PRODUCTS GROWN ON ORNAMENTAL OBJECTS FOUND IN THE NECROPOLIS OF COLLE BADETTE-TORTORETO (TERAMO-ITALY).**  
G.M. Ingo, ISMN-CNR, CP 10, 00016 Monterotondo Stazione, Rome (Italy), A. Lapenna, Soprintendenza per i Beni Archeologici dell'Abbruzzo, Chieti (Italy), I. Pierigè, Soprintendenza per i Beni Archeologici dell'Abbruzzo, Chieti (Italy), T. de Caro, ISMN-CNR, CP 10, 00016 Monterotondo Stazione, Rome (Italy), M. Albinì and C. Riccucci, ISMN-CNR, CP 10, 00016 Monterotondo Stazione, Rome (Italy)
- S/P1-15 **MICROCHEMICAL INVESTIGATION OF ROMAN AND MEDIEVAL SILVER COATED OBJECTS**  
G.M. Ingo, ISMN-CNR, CP 10, 00016 Monterotondo Stazione, Rome (Italy), M. Carrara, Soprintendenza per i Beni Archeologici di Roma, Roma (Italy), I. Fragalà, Università di Catania (Italy), T. de Caro, ISMN-CNR, CP 10, 00016 Monterotondo Stazione, Rome (Italy), G. Bultrini, Università di Catania (Italy) and C. Riccucci, ISMN-CNR, CP 10, 00016 Monterotondo Stazione, Rome (Italy).
- S/P1-16 **MICROCHEMICAL INVESTIGATION OF BRITTLE CARTHAGINIAN SILVER ARTEFACTS**  
G.M. Ingo, ISMN-CNR, CP 10, 00016 Monterotondo Stazione, Rome (Italy), P. Bartoloni, Università di Sassari, Sassari (Italy), P. Bernardini, Soprintendenza Archeologica alle province di Cagliari e Oristano, Cagliari (Italy), E. Angelini, Politecnico di Torino, Torino (Italy), S. Grassini, Politecnico di Torino, Torino (Italy), and C. Riccucci, ISMN-CNR, CP 10, 00016 Monterotondo Stazione, Rome (Italy)
- S/P1-17 **PRODUCTION OF "ANCIENT" REFERENCE Ag-BASED ALLOYS AND THEIR ACCELERATED DEGRADATION METHODS**  
G.M. Ingo, ISMN-CNR, CP 10, 00016 Monterotondo Stazione, Rome (Italy), T. de Caro, ISMN-CNR, CP 10, 00016 Monterotondo Stazione, Rome (Italy), C. Riccucci, ISMN-CNR, CP 10, 00016 Monterotondo Stazione, Rome (Italy)
- S/P1-18 **ARCHEOMETALURGICAL STUDY OF BRAZILIAN COLONIAL OBJECTS**  
G.N.Campos\*, I.G. Solórzano\* and M. Aucuturier# \*Department Material Science and Metallurgy, PUC-Rio, Brazil \*Musée du Louvre, CNRS, Paris, France
- S/P1-19 **CHARACTERIZATION OF BAROQUE TIN AMALGAM MIRRORS OF THE HISTORICAL GREEN VAULT IN DRESDEN**  
O. Zywitzki, W. Nedon, T. Kopte, T. Modes, Fraunhofer Institut Elektronenstrahl- und Plasmatechnik, Winterbergstrasse 28, 01277 Dresden, Germany
- S/P1-20 **Holographic definition of impact signatures. Preliminary results with digital speckle holographic interferometry.**  
V Tornari1, E. Bernikola1, K. Xatzhgiannakis1, Y. Orphanos1, C. Fotakis1 1. Foundation for Research and Technology-Hellas (FORTH), Institute of Electronic Structure and Laser (IESL), Vassilika Vouton-Voutes, 71110 Heraklion, Crete, Greece.

## Wednesday, May 30, 2007

08:30 **EMRS PLENARY SESSION**

12:30 **Lunch**

### **GLASS**

- S5-1 14:00 **Glass of the Past: Characterisation of Artefacts and their Surfaces by Micro- and Nano-Techniques**  
Manfred Schreiner Institute of Science and Technology in Art, Academy of Fine Arts, Schillerplatz 3, A-1010 Vienna/Austria Institute of Chemical Technologies and Analytics, Analytical Chemistry Division, Vienna University of Technology, Getreidemarkt 9, A-1060 Vienna/Austria
- S5-2 14:30 **Rediscovering ancient opaque glass technologies through crystals examination**  
Sophia Lahli1, Isabelle Biron1, Laurence Galois2 and Guillaume Morin2 (1) C2RMF Centre de Recherche et de Restauration des Musées de France UMR 171 Palais du Louvre, Porte des Lions, 14 quai François Mitterand 75001 Paris, France (2) IMPMC Institut de Minéralogie et de Physique des Milieux Condensés UMR 7590 CNRS, Universités Paris 6&7, 140 rue de Lourmel 75015 Paris, France
- S5-3 14:50 **Non invasive XRD investigation on fine Renaissance manufactures of Museo degli Argenti of Palazzo Pitti in Florence**  
G. Berti (1), A. Nicoletta (2), F. De Marco (2) (1)Earth Science Department - University of Pisa (2)XRD- Tools - Academic spin off

### **CONSERVATION**

- S6-1 15:10 **The Nanoscience Contribution to Conservation of Cultural Heritage**  
The Nanoscience Contribution to Conservation of Cultural Heritage Piero Baglioni Department of Chemistry and CSGI, University of Florence, Florence, Italy
- S6-2 15:40 **Growth dynamics of artificially induced calcium oxalate films for the conservation of marbles by means of fast X-Ray diffraction measurements.**  
D. Benedetti1, A. Zacco1, E. Bontempi1, L.E. Depero1 1 INSTM and Chemistry for Technologies Laboratory, University of Brescia, Via Branze 38, 25123 Brescia, Italy
- 16:00 **BREAK**
- S6-3 16:30 **Synthesis of colloidal systems of Sr(OH)<sub>2</sub> nanoparticles in homogeneous phase at low temperature**  
Enrico Ciliberto, Salvatore La Delfa Dipartimento di Scienze Chimiche dell'Università di Catania, viale A.Doria 6, 95125 Catania Email cilibert@ unict.it
- S6-4 17:10 **A new technology for anticounterfeiting of art works**  
Luca Gregoratti and Matteo Dalmiglio Sincrotrone Trieste SCpA SS14-Km163.5 in Area Science Park 34012 Trieste Italy
- S6-5 17:30 **DESERT VARNISH: CULTURAL HERITAGE AND CLIMATIC CHANGES**  
Francaviglia V.1, Jungner H.2, Ney C.3, Boizumault M.3, Petit-Maire N.4, Massué J-P.5 et Schvoerer M.3 1 CNR - ITABC, Rome (Italy) 2 University of Helsinki (Finland) 3 University of Bordeaux 3 & CNRS (France) 4 CNRS - Aix en Provence (France) 5 FER - PACT (Réseau Européen Sciences et Patrimoine Culturel)

19:00

**E-MRS RECEPTION PALAIS DES CONGRES**

## Thursday, May 31, 2007

### DATING

- S7-1 09:00 **High resolution RBS and simultaneous complementary IBA techniques at atmospheric pressure**  
J. Salomon, Ph. Walter, Th. Guillou, B. Moignard, L. Pichon Centre de recherche et de restauration des Musées de France, CNRS- UMR 171, 14 quai François Mitterrand, F-75001 Paris
- S7-2 09:30 **Dating the Minoan eruption of Santorini: A profound disagreement**  
Walter Kutschera Vienna Environmental Research Accelerator (VERA) Faculty of Physics, University of Vienna
- S7-3 10:00 **THE ROLE OF RADIOCARBON IN NON-CONVENTIONAL PROBLEMS: DATING ARTEFACTS FROM MEDIEVAL AND RENAISSANCE TIMES**  
M.E. Fedi, A. Cartocci, F.Taccetti, P.A. Mandò Dipartimento di Fisica dell'Università di Firenze e INFN Sezione di Firenze
- 10:20 **BREAK**
- PAPERS**
- S8-1 10:50 **Non-invasive spectroscopic characterization of illuminated parchment diplomas from the Archivio Storico dell'Ospedale Maggiore in Milan**  
D. Bertani\*, S. Bruni\*, L. Consolandi\*, V. Guglielmi\*, M. Piccolo\* \*Centro di Riflettografia Infrarossa e Diagnostica dei Beni Culturali, Università di Milano, Via Celoria 16, 20133 Milano, Italy. ° Istituto di Fisica Applicata "Nello Carrara", IFAC-CNR, Via Madonna del Piano 10, 50019 Sesto Fiorentino (FI), Italy.
- S8-2 11:10 **MÖSSBAUER SPECTROMETRY APPLIED TO THE STUDY OF IRON GALL INK MANUSCRIPTS**  
C. Burgaud (1,2), V. Rouchon (1,2), P. Refait (1) et A. Wattiaux (3) (1) Université de La Rochelle, LEMMA, Bâtiment Marie Curie, 17042 La Rochelle Cedex 01. (2) Centre de Recherche pour la Conservation des Documents Graphiques, CNRS 36 rue Geoffroy Saint Hilaire, 75005 Paris, (3) ICMCB, CNRS, Université de Bordeaux 1, 87 avenue du Docteur Schweitzer, 33608 PESSAC Cedex, France
- S8-3 11:30 **SurveNIR: a new non-destructive tool for analysis of historical paper based on IR spectroscopy and chemometry**  
Tanja Trafela 1, Matija Strlič 1, Dirk Lichtblau 2, Jana Kolar 3 1 University of Ljubljana, Faculty of Chemistry and Chemical Technology, Ljubljana, Slovenia 2 Zentrum für ucherhaltung, Leipzig, Germany 3 National and University Library, Ljubljana, Slovenia
- S8-4 11:50 **A vibrational and electronic spectroscopic investigation of metal-dye complexes in painting lakes**  
C. Clementi,1, B.Doherty 1, C. Miliani2 A. Romani,1 B.G. Brunetti1, A. Sgamellotti1,2 1SMAArt, Department of Chemistry, Via Elce di Sotto,8 06123 Perugia. 2CNR-ISTM, Department of Chemistry, Via Elce di Sotto,8 06123 Perugia
- 12:10 **LUNCH**
- 14:00 **Poster Session 2**
- S/P2-1 **A SCIENTIFIC APPROACH TO THE ATTRIBUTION PROBLEM OF RENAISSANCE CERAMIC PRODUCTION BASED ON CHEMICAL AND MINERALOGICAL MARKERS.**  
G. Padeletti, L. Vichi ISMN-CNR, via Salaria km 29.3, 00016 Monterotondo (Roma), Italy
- S/P2-2 **CHEMICAL CLEANING MATERIALS AND METHODS OF ENCRUSTATIONS ON ARCHAEOLOGICAL CERAMICS ARTEFACTS FOUND IN DIFFERENT ITALIAN SITES**  
G.M. Ingo, ISMN-CNR, CP 10, 00016 Monterotondo Stazione, Rome (Italy), M.Pia Casaletto, ISMN-CNR, Palermo (Italy), I. Fragalà, Università di Catania (Italy), T. de Caro, ISMN-CNR, CP 10, 00016 Monterotondo Stazione, Rome (Italy), G. Bultrini, Università di Catania (Italy), C. Riccucci, ISMN-CNR, CP 10, 00016 Monterotondo Stazione, Rome (Italy), A. Caruso, ISMN-CNR, Palermo (Italy) and F. Caruso, ISMN-CNR, Palermo (Italy).
- S/P2-3 **THE SANSTONE OF THE ITALIC-ROMAN TEMPLE OF "COLLE DEL VENTO"-CROGNALETO (TERAMO-ITALY): MINERO-PETROGRAPHIC AND MICRO-CHEMICAL INVESTIGATION FOR IDENTIFYING DEGRADATION AGENTS AND MECHANISM**  
G.M. Ingo, ISMN-CNR, CP 10, 00016 Monterotondo Stazione, Rome (Italy), G. Angeletti, Soprintendenza per i Beni Archeologici dell'Abbruzzo, Chieti (Italy), S. Agostini, Soprintendenza per i Beni Archeologici dell'Abbruzzo, Chieti (Italy), T. de Caro, ISMN-CNR, CP 10, 00016 Monterotondo Stazione, Rome (Italy) and C. Riccucci, ISMN-CNR, CP 10, 00016 Monterotondo Stazione, Rome (Italy).
- S/P2-4 **MINERO-PETROGRAPHICAL, MICROCHEMICAL AND MICROSTRUCTURAL CHARACTERISATION OF SICILIAN "GELA TYPE" PROTOMAJOLICA**  
G. Bultrini, Università di Catania (Italy), I. Fragalà, Università di Catania (Italy) and G.M. Ingo, ISMN-CNR, CP 10, 00016 Monterotondo Stazione, Rome (Italy)
- S/P2-5 **MICROCHEMICAL AND MICROMORPHOLOGICAL INVESTIGATION OF LUSTRE PAINTED CERAMIC FROM SICILY AND SARDINIA (ITALY)**  
G. Bultrini, Università di Catania (Italy), I. Fragalà, Università di Catania (Italy) and G.M. Ingo, ISMN-CNR, CP 10, 00016 Monterotondo Stazione, Rome (Italy)
- S/P2-6 **Physical Characterisation of Ancient Ceramic Tiles from the Benedictine Monastery of Tibães in Portugal**  
M. Pereira1, T. de Lacerda-Arôso1, A. Mata2, M.I.C. Ferreira1 & R. Withnall3 1- Dept. of Physics, University of Minho, Campus de Gualtar, 4710-057 Braga, Portugal 2- Mosteiro de São Martinho de Tibães/IPPAR, 4700-565 Mire de Tibães, Portugal. 3- The Wolfson Centre for Materials Processing, Brunel University, Uxbridge, Middlesex, UK
- S/P2-7 **STUDY OF FICTILE TUBES COMING FROM SOME ROMANIC CHURCHES IN MILAN**  
GALLI A.(1), BONIZZONI L.(2) MARTINI M.(3), SIBILIA E.(3) (1) CNR-INFN and Dipartimento di Scienza dei Materiali, Università degli Studi Milano-Bicocca Via R. Cozzi, 53, 20125 Milano, Italy (2) Istituto di Fisica Generale Applicata, Università degli Studi Milano, Via Celoria 16, 20133 Milano, Italy (3) Dipartimento di Scienza dei Materiali, Università degli Studi Milano-Bicocca, Via R. Cozzi, 53, 20125 Milano, Italy

- S/P2-8 **Pigment characterization of Zograph's 19th century icons using X-ray fluorescence, particle induced X-ray emission and Raman microscopy**  
V. Desnica<sup>1</sup>, S. Mameucevska-Miljkovic<sup>2</sup>, L. Prusi Agai<sup>2</sup>, D. Mudronja<sup>3</sup>, K. Furic<sup>1</sup>, S. Fazinic<sup>1</sup>, M. Jaksic<sup>1</sup> <sup>1</sup>Rudjer Boskovic Institute, Bijenicka 54, 10000 Zagreb, Croatia <sup>2</sup>National Centre for Conservation, Evlija Celebija nn, 1000 Skopje, FYROM (Macedonia) <sup>3</sup>Croatian Conservation Institute, Grskoviceva 23, 10000 Zagreb, Croatia
- S/P2-9 **The Cleaning of early glasses: Investigation about the reactivity of different chemical protocols on the surface of ancient roman glass samples**  
Marilù Bruschi, Enrico Ciliberto, Salvatore La Delfa Dipartimento di Scienze Chimiche dell'Università di Catania, viale A.Doria 6, 95125 Catania Email cilibert@unict.it
- S/P2-10 **The joined use of n.i. spectroscopic analyses – FTIR, Raman, visible Reflectance Spectrometry and EDXRF – to study drawings and illuminated manuscripts**  
G. Poldi (1), (2), S. Bruni (3), S. Caglio (2), V. Guglielmi (3) (1) LANIAAC, Università degli Studi di Verona, via San Francesco 1, Verona – Italy; g.poldi@gmail.com (2) Dipartimento di analisi scientifiche, Open Care, via Piranesi 10, 20123 Milano – Italy (3) Dipartimento di chimica inorganica, metallorganica, e analitica, Università degli Studi di Milano, via Venezian 21, 20133 Milano – Italy
- S/P2-11 **Complementary use of the portable XRF and micro Raman techniques for reliable analysis of the XV c. mural paintings**  
M. Sawczak<sup>1</sup>, R. Jendrzewski<sup>1</sup>, A. Kaminska<sup>2</sup>, B. Lydzba-Kopczynska<sup>3</sup>, G. Rusek<sup>3</sup>, and G. Sliwinski<sup>1</sup> <sup>1</sup> Polish Academy of Sciences - IFFM, Fiszera St. 14, 80-231 Gdansk, Poland <sup>2</sup>Agency for Integration of Conservation Activities, Dubois St. 55, 80-419 Gdansk, Poland <sup>3</sup> Faculty of Chemistry, University of Wroclaw, F. J.-Curie St. 14, 50-383 Wroclaw, Poland
- S/P2-12 **A non invasive method to detect thickness, stratigraphy and pigment concentration of pictorial multilayers based on EDXRF and vis-RS**  
L. Bonizzoni (1), A. Galli (2), G. Poldi (3) (1) Istituto di Fisica Generale Applicata, Università degli Studi di Milano, via Celoria 16, 20133 Milano – Italy (2) CNR-INFM, Dipartimento di Scienza dei Materiali, Università degli Studi di Milano-Bicocca, via R. Cozzi 53, 20125 Milano – Italy (3) LANIAAC, Università degli Studi di Verona, Via San Francesco 2, Verona – Italy
- S/P2-13 **Portable XRF as a valuable device for preliminary in-situ pigment investigation of wooden inventory in the Trski Vrh Church in Croatia**  
V. Desnica<sup>1</sup>, K. Skaric<sup>2</sup>, S. Fazinic<sup>1</sup>, K. Furic<sup>1</sup>, M. Jaksic<sup>1</sup>, D. Mudronja<sup>2</sup>, M. Pavlicic<sup>2</sup>, I. Peranic<sup>2</sup> <sup>1</sup>R. Boskovic Institute, Bijenicka 54, HR-10000 Zagreb, Croatia <sup>2</sup>Croatian Conservation Institute, Grskoviceva 23, HR-10000 Zagreb, Croatia
- S/P2-14 **Optical characterization of pigments by colorimetric analysis as support of UV laser cleaning treatments**  
S. Acquaviva, E. D'Anna, M.L. De Giorgi Department of Physics, University of Lecce, Italy A. Della Patria C.N.R.-I.N.O.A., Arnesano (Lecce), Italy L. Pezzati C.N.R.-I.N.O.A., Arcetri-Firenze, Italy
- S/P2-15 **MICROCHEMICAL AND MICROSTRUCTURAL CHARACTERISATION OF ANCIENT BROWN PIGMENTS USED IN SICILY FOR CERAMIC DECORATION**  
G. Bultrini, Università di Catania (Italy), I. Fragalà, Università di Catania (Italy) and G.M. Ingo, ISMN-CNR, CP 10, 00016 Monterotondo Stazione, Rome (Italy)
- S/P2-16 **Characterization of 'Grotta del Crocifisso's frescos (Lentini)' undergone to dramatic thermo hygrometric conditions**  
Chiara Ciliberto, Enrico Ciliberto, Salvatore La Delfa, Alessandro Serra Dipartimento di Scienze Chimiche dell'Università di Catania, viale A.Doria 6, 95125 Catania Email cilibert@unict.it
- S/P2-17 **Characterization of blue decorated Renaissance pottery fragments from Caltagirone (Sicily)**  
D. Barilaro, V. Crupi, S. Interdonato, D. Majolino, V. Venuti Department of Physics, University of Messina, Contrada Papardo, Salita Sperone 31, 98166 Messina, Italy G. Barone, M. F. La Russa Department of Geological Science, University of Catania, Corso Italia 55, 95129 Catania, Italy F. Bardelli Department of Physics, University of Roma Tre, Via della Vasca Navale 84, 00146 Roma, Italy and CNR-INFM-OGG c/o ESRF GILDA CRG 6, Rue Jules Horowitz F-38043 Grenoble, France
- S/P2-18 **Characterisation and differentiation of pigments used on the façade of "Noto Valley"'s monuments (Sicily)**  
1 G Barone., 2 V Crupi., 1 M.F.La Russa, 2 D Majolino., 1 P Mazzoleni., 1 A. Pezzino <sup>1</sup> Department of Geological Science, University of Catania, Corso Italia 55, 95129 Catania, Italy <sup>2</sup> Department of Physics, University of Messina, Contrada Papardo, Salita Sperone 31, 98166 Messina, Italy
- BREAK**

## Friday, June 1, 2007

### PAINTINGS

- S9-1 08:30 **Non-destructive analysis of paintings by ion beam techniques and XRF mobile system**  
David STRIVAY, François MATHIS, Grégoire CHENE, François-Philippe HOCQUET, Henri-Pierre GARNIR Centre Européen d'Archéométrie, Université de Liège, Belgium
- S9-2 09:00 **Nanotechnology for sensing: SERS substrates for the identification of artists' red colorants**  
Francesca Casadio<sup>1,\*</sup>, Alyson V. Whitney<sup>2</sup>, and Richard P. Van Duyne<sup>2</sup> 1: The Art Institute of Chicago, 111 S. Michigan Ave., Chicago, IL 60603-6110 2: Department of Chemistry, Northwestern University, 2145 Sheridan Rd., Evanston, IL 60208-3113
- S9-3 09:30 **Butterflies inclusions in Van Schrieck masterpieces. Techniques and optical properties.**  
S. Berthier\*, J. Boulenguez\*, M. Menu\*\*, B.Mottin \*\* \* Institut des NanoSciences de Paris, UMR n° 7588, CNRS, Université Pierre et Marie Curie, Université Denis Diderot, 140 rue de Lourmel, 75015 Paris – France. \*\* Centre de Recherche et de Restauration des Musées de France, UMR 17, Palais du Louvre, Porte des Lions, 14 quai François Mitterand, 75001 Paris – France.
- S9-4 09:50 **X-RAY ABSORPTION SPECTROSCOPY INVESTIGATIONS ON THE BLACKENING PROCESS OF COPPER RESINATE IN A XV CENTURY ITALIAN PAINTING**  
L. CARTECHINI, C. MILIANI Istituto di Scienze e Tecnologie Molecolari – CNR, Sezione di Perugia, c/o Dipartimento di Chimica, Università di Perugia, via Elce di Sotto 8, 06123 Perugia, Italy B. G. BRUNETTI, A. SGAMELLOTTI INSTM and Centro SMAArt, Dipartimento di Chimica, Università di Perugia, via Elce di Sotto 8, 06123 Perugia, Italy C. ALTAVILLA, E. CILIBERTO Dipartimento di Scienze Chimiche, Università di Catania, Viale Doria 6, 95125 Catania, Italy F. D'ACAPITO INFN, ESRF, GILDA-CRG, B.P. 220, 38043 Grenoble, France
- 10:10 **BREAK**
- S9-5 10:40 **The Material Analysis of Inorganic Pigments from Pompeian Wall Paintings of Marcus Lucretius' House**  
U. Knuutinen<sup>1,2\*</sup>, S. Hornytzkyj<sup>3</sup> and H. Mannerheimo<sup>1</sup> 1 EVTEK University of Applied Sciences, EVTEK Institute of Art and Design, Conservation department, 01300 Vantaa, Finland ulla.knuutinen@evtek.fi hanne.mannerheimo@evtek.fi 2 University of Jyväskylä, Department of Art and Culture Studies/ Museology, PL 35 FIN-40014, Finland. 3 Finnish National Gallery, Conservation Department, Materials Research Laboratory, Helsinki, Finland. seppo.hornytzkyj@fng.fi \*Corresponding author. Email: ulla.knuutinen@evtek.fi
- S9-6 11:00 **Spectrofluorimetric analysis of aged and unaged proteins found in paintings**  
Austin Nevin<sup>1,2</sup>, Demetrios Anglos<sup>1</sup>, Sharon Cather<sup>2</sup>, Costas Fotakis<sup>1</sup> 1 Institute of Electronic Structure and Laser, Foundation for Research and Technology Hellas (IESL-FORTH), P. O. Box 1527, Heraklion, 71110 Crete, Greece. 2 Conservation of Wall Paintings Department, Courtauld Institute of Art, University of London, Somerset House, Strand, WC2R 0RN, London, U.K.
- S9-7 11:20 **Investigation of degradation issues in Byzantine wall paintings through non-invasive and microscopic multi techniques approach**  
Sophia Sotiropoulou<sup>1</sup>, Sister Daniilia<sup>1</sup>, Demetra Papanikola-Bakirtzis<sup>2</sup>, Costanza Miliani<sup>3,4</sup>, Francesca Rosi<sup>4</sup>, Laura Cartechini<sup>3,4</sup> 1 "Ormylia" Art Diagnosis Centre, Sacred Convent of the Annunciation, 63071 Ormylia 2 Archaeological Institute of Macedonian and Thracian Studies, Thessaloniki 3 CNR-ISTM, Dipartimento di Chimica Via Elce di Sotto, 8, 06123 Perugia 4 SMAArt, Dipartimento di Chimica Via Elce di Sotto, 8, 06123 Perugia
- S9-8 11:40 **The Use of Atmospheric Pressure Laser Desorption Mass Spectrometry for the Study of Traditional Painting Materials**  
Roberta D'Agata,<sup>a</sup> Giuseppe Grasso,<sup>a</sup> Salvatore Simone,<sup>b</sup> Paolo Cremonesi,<sup>c</sup> Giuseppe Spoto,<sup>a,d</sup> aDipartimento di Scienze Chimiche, Università di Catania, Viale A. Doria 6, 95125, Catania (Italy). gspoto@dipchi.unict.it. b Dipietro Automazione S.r.l., C.da Cava Sorciaro, c.p.54, Priolo Gargallo (SR) (Italy). c CESMAR7, Via Lombardia 41-43, 35020, Saonara (PD) (Italy). dIstituto Biostrutture e Bioimmagini, CNR, Viale A. Doria 6, 95125, Catania (Italy).
- S9-9 12:00 **Artificial Aging of Original Colorants of the Viennese Painter Rudolf von Alt**  
C. Li<sup>(1)</sup>, W. Vetter<sup>(2)</sup>, A. Gnann<sup>(3)</sup> M. Schreiner<sup>(2)</sup>, E. Wintner<sup>(1)</sup> 1) Institute of Photonics, Vienna University of Technology, Gusshausstraße 27/387, 1040 Vienna/Austria 2) Institute of Science and Technology in Art, Academy of Fine Arts, Schillerplatz 3, 1010 Vienna/Austria 3) Albertina, Albertinaplatz 1, 1010 Vienna/Austria