



LACONAVI

LASERS IN THE CONSERVATION OF ARTWORKS

PROGRAMME

6th international congress on lasers in
the conservation of artworks

21 - 25 september 2005
academy of fine arts vienna



Tuesday, September 20, 2005

16 00-18 00 Pre-registration

Wednesday, September 21, 2005

08 00 Registration

09 30 **Opening:** Welcome Addresses
J. Nimmrichter/M. Schreiner, Chairmen of LACONA VI
C. Fotakis, Founder of LACONA
W. Kautek, President of LACONA
G. W. Rizzi, President of the Austrian Federal Office for Care and Protection of Monuments
S. Schmidt-Wulffen, Rector of the Academy of Fine Arts, Vienna
B. Böck, General Director of Cultural Affairs of the Federal Ministry of Education, Science and Culture

Session I, diagnostics I

Chair: M. Castillejo (Madrid, E)

10 20 **Serendipity, punctuated**
J. F. Asmus (San Diego, USA)

10 50 **Raman spectroscopy: new light on ancient artefacts**
P. Vandenabeele (Ghent, B) invited speaker

11 35 **Femtosecond LIBS. Prospects for cultural heritage applications**
D. Anglos (Heraklion, GR), I. Mantouvalou (Heraklion, GR), D. Gray, (Heraklion, GR),
T. Naberbauer (Heraklion, GR), S. Tzortzakis (Palaiseau, F)

12 15 LUNCH

Session II, diagnostics II

Chair: R. Salimbeni (Florence, I)

14 00 **Low resolution LIBS for online-monitoring during laser cleaning based on correlation with reference spectra**
M. Lentjes (Münster, D), K. Dickmann (Münster, D), J. Meijer (Twente, NL)

14 20 **Controlling laser cleaning of artworks with LIBS-based feedback**
C. Bonserio, A. M. Losacco, D. Naso, F. Tedeschi, B. Turchiano (all Bari, I)

14 40 **On-line monitoring of the laser cleaning of marbles by laser induced breakdown spectroscopy (LIBS)**
V. Lazic, L. Caneve, F. Colao, R. Fantoni, V. Spizzichino (all Frascati, I), E. Teppo (Bozeman, USA)

15 00 **Laser induced plasma spectroscopy for the analysis of Roman ceramics Terra Sigillata**
A. J. López, G. Nicolás, M. P. Mateo, V. Piñón, A. Ramil (all Ferrol, E)

Poster Session I, diagnostics

Chair: W. Kautek (Vienna, A), M. Cooper (Liverpool, UK)

15 20

P1. Classification of patinas found on surfaces of historical buildings by means of laser induced breakdown spectroscopyC. Vazquez-Calvo (Madrid, E), A. Giakoumaki (Heraklion, GR), D. Anglos (Heraklion, GR), M. Álvarez de Buergo (Madrid, E), R. Fort (Heraklion, GR)**P2. Effects of measurement's parameters on some pigments detection by laser-induced breakdown spectroscopy**R. Bruder (Champs-sur-Marne, F), J. L. Lacour (Gif sur Yvette, F), V. Detalle (Champs-sur-Marne, F)**P3. Spectra correlation in LIBS analysis of pigments**E. Tzamali, D. Anglos (both Heraklion, GR)**P4. Pigment identification of a XIII c. wooden crucifix by means of the Raman and LIBS spectroscopic techniques**A. Kaminska, M. Sawczak, M. Oujja, M. Klossowska, G. Sliwinski (all Gdansk, PL), M. Castillejo (Madrid, E)**P5. LIBS as a diagnostic tool in the conservation process: applications on archaeological and historical metal artefacts**S. Chlouveraki, K. Zervaki, A. Melessanaki, D. Anglos (all Heraklion, GR)**P6. Colorimetry, LIBS and Raman experiments on Renaissance green sandstone decoration during laser cleaning of King Sigismund's Chapel in Wawel Castle Cracow, Poland**A. Sarzyński, W. Skrzeczanowski, J. Marczak (all Warsaw, PL)**P7. Fiber-optic LIBS probe for cultural heritage analysis**S. von Olearius, G. Moutzisz, K. Melessanaki, D. Anglos (all Heraklion, GR)**P8. Raman analysis of portrait miniatures**R. Withnall, A. Derbyshire, T. Tallian (all Greenwich, UK)**P9. Applications of a compact portable Raman spectrometer for the field analysis of pigments in works of art**S. Bruni, V. Guglielmi (all Milan, I)**P10. Pigment identification on "The ecstasy of St. Theresa" painting by Raman microscopy**M. Marmontelli (Bari, I), D. Marano (Bari, I), G. E. de Benedetto (Lecce, I), I. M. Catalano (Bari, I), L. Sabbatini (Lecce, I), F. Vona (Puglia, I)**P11. Raman microspectroscopy as a complementary technique for a complete petro-chemical characterization of ceramic amphorae found in the Roman harbour of Pisa (Italy)**E. Pecchioni, E. Cantisani, P. Pallecchi, C. Lofrumento, E. M. Castellucci, F. Frantini, S. Rescic, A. Zoppi (all Florence, I)**P12. An integrated system for optical and nuclear material analysis**L. Calcagnile, G. Gianfrate, G. Quarta, K. Butalag, D. Muscogiuri, L. Maruccio, U. Toma (all Lecce, I)**P13. Secondary ion mass spectrometry (SIMS) studies on surfaces cleaned with lasers**D. McPhail, M. Sokhan (all London, UK)**P14. Raman identification of red lake pigment dyestuffs**P. Papaevangeliou, A. Zopi, C. Lofrumento, E. Castellucci (all Florence, I)

P15. Removal of simulated dust from water based acrylic emulsion paints by laser irradiation at IR, VIS and UV wavelengths

M. Westergaard (Copenhagen, DK), P. Pouli (Heraklion, GR), C. Theodorakopoulos (London, UK), V. Zafirooulos (Heraklion, GR), J. Bredal-Jørgensen (Copenhagen, DK), U. Staal Dinesen (Copenhagen, DK)

P16. Analytical characterisation of the effects promoted by UV laser radiation on pigment mixtures

P. J. Morais, R. Bordalo, H. Gouveia (all Porto Salvo, P), Ch. Young (London, UK)

P17. Laser blackening as a mean for identifying the provenance of white crystalline marble

A. Blanc, Ph. Blanc (both Paris, F)

P18. Measuring the thickness of protective coatings on historic metal objects using nanosecond and femtosecond LIBS depth profiling

A. Giakoumaki, P. Pouli, K. Melessanaki, V. Argyropoulos, D. Anglos, (all Heraklion, GR)

P19. Lasercompany I**P20. Lasercompany II**

16 00

COFFEE-BREAK & POSTERS

Session III, diagnostics III

Chair: K. Watkins (Liverpool, UK)

16 30

Keynote I**Laser tools for a global strategy in conservation of artworks: analysis, diagnosis and monitoring of environmental impact**

M. Castillejo (Madrid, E)

17 15

A final report on the oxidation and condensation gradients of aged painting varnishes studied with UV pulsed laser ablation

C. Theodorakopoulos (London, UK), V. Zafirooulos (Sitia, GR), J. J. Boon (Amsterdam, NL)

17 35

Laser induced fluorescence analysis of protein-based binding media

A. Nevin (London, UK), S. Cather (London, UK), D. Anglos (Heraklion, GR), C. Fotakis (Heraklion, GR)

17 55

Varnish thickness determination by spectral domain optical coherence tomography

I. Gorczyńska, M. Szkulmowski, T. Bajraszewski, B. Rouba, A. Kowalczyk, P. Targowski (all Torun, PL)

18 15

Optical coherence tomography for painting diagnostics

T. Arecchi, M. Bellini, C. Corsi, R. Fontana, M. Materazzi, L. Pezzati, A. Tortora (all Florence, I)

18 35

Investigation on painting materials in “Madonna col Bambino e S. Giovannino” by Botticelli

D. Bersani, P. P. Lottici, A. Casoli, C. Violante, M. Ferrari, S. Lottini (all Parma, I)

19 00

VISIT to the “GEMÄLDEGALERIE” of the Academy of Fine Arts

20 00

WELCOME RECEPTION at the Academy of Fine Arts

Thursday, September 22, 2005**Session IV, diagnostics IV**

Chair: K. Dickmann (Münster, D)

- 08 30 **Keynote II, MOLAB, a mobile laboratory for in situ non-invasive studies in arts and archaeology**
B. G. Brunetti (Perugia, I), M. Matteini, L. Pezzati, invited speaker, D. Pinna (all Florence, I)
- 09 15 **Monitoring of deformations induced by crystal growth of salts in porous systems using microscopic speckle pattern interferometry**
G. Gülker, K. D. Hinsch, A. El Jarad (all Oldenburg, D)
- 09 35 **Fluorescence lidar multispectral imaging for diagnosis of historical monuments – Övedskloster, a Swedish case study**
R. Grönlund, J. Hällström, S. Svanberg, K. Barup (all Lund, S)
- 09 55 COFFEE-BREAK

Session V, organic materials

Chair: V. Zafiroopoulos (Sitia, GR)

- 10 30 **Keynote III, Cleaning of organic materials**
W. Kautek (Vienna, A)
- 11 15 **An evaluation of Nd: YAG laser cleaned basketry in comparison with commonly used cleaning methods**
A. Elliott (Santa Fe, USA)
- 11 35 **Femtosecond laser cleaning of painted artefacts; is this the way forward?**
P. Pouli, I. Bounos, S. Georgiou, C. Fotakis (all Heraklion, GR), M. Doulgeridis (Athens, GR)
- 11 55 **Laser cleaning of silk – evaluation of possible chemical change**
K. von Lerber (Winterthur, CH), M. Sokhan (London, UK), M. Strlic (Ljubljana, SLO), S. Pentzien (Berlin, D), W. Kautek (Vienna, A)
- 12 15 LUNCH

Session VI, organic and inorganic materials I

Chair: G. Bonsanti (Florence, I)

- 14 00 **Keynote IV, Laser cleaning on paintings and polychrome surfaces**
R. Hestermann (Muiden, NL)

Poster Session II, organic and inorganic materials

Chair: M. Castillejo (Madrid, E), G. Bonsanti (Florence, I)

- 14 45 **P21. The applicability of optical coherence tomography at 1.55 μm to the examination of oil paintings**
A. Szkulmowska, M. Góra, M. Targowska, B. Rouba (all Torun, PL), D. Stifter (Linz, A), E. Breuer (Linz, A), P. Targowski (Torun, PL)

P22. Spectral domain optical coherence tomography as a profilometric tool for examination of the environmental influence on paintings on canvas

B. Rouba, T. Łękawa-Wysłouch, I. Gorczyńska, T. Bajraszewski, M. Targowska, P. Targowski (all Torun, PL)

P23. Preliminary results of the Er:YAG laser cleaning of textiles, paper and parchment

A. Andreotti (Pisa, I), M. P. Colombini (Pisa, I), S. Conti (Florence, I), A. deCruz (USA), G. Lanterna (Florence, I), M. L. Nussio (Florence, I), K. Nakahara (Florence, I), F. Penaglia (Pisa, I)

P24. Non-destructive observation of the ablative cleaning effect on historical paper via the laser-induced fluorescence spectra

K. Komar, G. Sliwinski (both Gdansk, PL)

P25. Laser cleaning in historical textiles: a comparative evaluation of the long term effects

A. M. Malo, C. E. Remirez (both Valladolid, E)

P26. Determination of a working range for the laser cleaning of soiled silk

J. Krüger (Berlin, D), S. Pentzien (Berlin, D), K. von Lerber (Winterthur, CH)

P27. Imaging and mass spectrometry of microparticles generated during surface decontamination of ancient parchment by pulsed laser radiation

R. Wurster, S. Pentzien, W. Kautek

P28. Simultaneous UV-IR Nd:YAG laser cleaning of leather artefacts

S. Batishche, A. Kouzmouk, G. Tatur, T. Gorovets, U. Pilipenka, V. Ukhau (all Minsk BY), W. Kautek (Vienna, A)

P29. Laser cleaning of paper - an extensive optimisation study

M. Strlič, J. Kolar

P30. Laser cleaning of polyurethane foam – an investigation using 3 variants of commercial PU products

U. Staal Dinesen (Copenhagen, DK), M. Westergaard (Helsingor, DK)

P31. Laser cleaning of wooden ceiling by polychromy of the 16th-century church

M. Lubryczynska, J. Czernichowska, J. Marczak (all Warsaw, PL)

P32. Comparative studies of traditional and laser cleaning methods of historic picture post cards

H. Holle (Vienna, A), M. Mäder (Vienna, A), M. Schreiner (Vienna, A), S. Pentzien (Berlin, D), W. Kautek (Vienna, A)

P33. Investigations of varnish removal using modified Er:YAG laser

J. Marczak, R. Ostrowski, A. Rycyk, M. Strzelec, I. Szmelter, A. Koss (all Warsaw, PL)

P34. Comparison of steam and dry laser cleaning of artworks

A. Sarzyński, J. Marczak, K. Jach (all Warsaw, PL)

P35. Comparative study on the N-mode, short free running and Q-switch Nd:YAG laser beam application for paintings and graffiti cleaning on calcareous stone

G. Daurelio, I. M. Catalano, S. E. Andriani (all Bari, I)

P36. Laser cleaning for biological growth in India

S. B. Reader (Agra, IND)

P37. Laser-induced breakdown spectroscopy (LIBS) of cinematographic film

C. Abrusci, M. Oujja, E. Rebolgar, S. Gaspard, A. del Amo, F. Catalina, M. Castillejo (all Madrid, E)

P38. A new solution for the painting artwork rear cleaning and restoration: the laser cleaning

S. E. Andriani, I. M. Catalano, A. Brunetto, G. Daurelio (all Bari, I), F. Vona (Puglia, I)

P39. The possibility to create the CO₂-lasers for art pieces' cleaning

L. V. Kovalhuk, V. M. Irtuganov, V. V. Lubimov, V. A. Parfenov (all St Petersburg, RUS)

P40. Preliminary results of the Er:YAG laser cleaning of mural paintings

A. Andreotti (Pisa, I), M. P. Colombini (Pisa, I), A. deCruz (Durham, USA), A. Felici (Florence, I), G. Lanterna (Florence, I), M. R. Lanfranchi (Florence, I), K. Nakahara (Florence, I), F. Penaglia (Pisa, I)

P41. Laser cleaning application on Lady's Church atrium from Bucharest city centre

W. Maracineanu, J. Striber, C. Deciu, R. Radvan, R. Savastru, D. Mohanu (all Bucharest, RO)

P42. Integration of laser ablation techniques in the cleaning of wall paintings: the case studies of Cappella del Manto and Sagrestia Vecchia in Santa Maria della Scala, Siena

S. Siano (Florence, I), A. Brunetto (Vicenza, I), A. Mencaglia (Florence, I), G. Guasparri, A. Scala, F. Droghino, A. Bagnoli (Siena, I)

P43. A novel portable multi-wavelength laser system

A. Charlton, B. Dickinson (all Cheshire, UK)

15 30

COFFEE-BREAK & POSTERS

Session VII, organic and inorganic materials II

Chair: V. Verges-Belmin (Camps-sur-Marne, F)

- 16 15 **Cleaning of paint-surfaces and examination of cleaned surfaces by 3D-measuring technology at the August Deusser Museum**
P.-B. Eipper (Horheim, D)
- 16 35 **From the lab to the scaffold: laser cleaning of polychromed architectonic elements and sculptures**
M. Castillejo, C. Domingo, F. Guerra-Librero, M. Jadraque, M. Martín, M. Oujja, E. Rebollar, R. Torres (all Madrid, E)
- 16 55 **SALUT-Project (study of advanced laser techniques for the uncovering of polychromed works of art)**
K. Keutgens, D. Anthierens, G. Van der Snickt, A. De Boeck (all Antwerpen, B)
- 17 15 **Novel applications of the Er:YAG laser cleaning of paintings**
A. Andreotti (Pisa, I), P. Bracco (Florence, I), M. P. Colombini (Pisa, I), A. deCruz (Durham, USA), G. Lanterna (Florence, I), K. Nakahara (Florence, I), F. Penaglia (Pisa, I)
- 17 35 **The application of laser cleaning to the removal of lime based coverings on wall paintings of the church of S. Maria in Nanto**
V. Fassina, Ch. Rigoni (both Venice, I)
- 17 55 **Laser cleaning studies on wall paintings; a preliminary study of various laser cleaning regimes**
E. Dragasi (Aigaleo, GR), N. Minos (Aigaleo, GR), P. Pouli (Heraklion, GR), C. Fotakis (Heraklion, GR), Zanini (Calenzano, I)

20 00

RECEPTION in the town hall of Vienna (Rathaus), entrance Lichtenfelsgasse

Friday, September 23, 2005

Session VIII, stoneworks

Chair: C. Weeks (Hertfordshire, UK)

- 08 30 **Keynote V, The application of laser cleaning in the conservation of twelve limestone relief panels on St. George's Hall**
M. Cooper, S. Sportun (both Liverpool, UK)
- 09 15 **A comprehensive study of the coloration effect associated with laser cleaning of pollution encrustations from stonework**
P. Pouli, G. Totou, V. Zafirooulos, C. Fotakis, (all Heraklion, GR), E. Rebollar, M. Oujja, M. Castillejo, C. Domingo (all Madrid, E)
- 09 35 **Study of different poultices to remove the laser cleaning yellowing effect**
M. Labouré (Rueil-Malmaison, F), V. Vergès-Belmin (Champs-sur-Marne, F)
- 09 55 **Laser cleaning of organic formations on XII century granite walls**
M. P. Mateo, G. Nicolas, V. Piñon, A. J. Lopez, A. Yañez (all Ferrol, E)
- 10 15 **The potential use of laser ablation for selective cleaning of Indiana limestone at the Metropolitan Museum of Art**
K. C. Normandin, D. Slaton, L. Powers (all New York, USA)
- 10 35 **COFFEE-BREAK**

Session IX, lasersafety

Chair: W. Kautek (Vienna, A)

- 11 00 **Generation of nanoparticles during laser ablation – risk assessment of non-beam hazards during laser cleaning**
S. Barcikowski, N. Bärsch, A. Ostendorf (all Hanover, D)
- 11 20 **Health risks caused by particulate emission during laser cleaning**
R. Ostrowski, J. Marczak, M. Strzelec (all Warsaw, PL), St. Barcikowski, J. Walter, A. Ostendorf (all Hanover, D)
- 11 40 **LUNCH**

Session X, "Einstein Session" World Year of Physics (tutorial for Austrian high schools)

Chair: C. Fotakis (Heraklion, GR)

- 12 00 **Lasers in the conservation of artworks (Laser in der Restaurierung von Kunstwerken)**
W. Kautek (Vienna, A)
- 13 00 **Lasercleaning of stonework-practise (Praxis der Laserreinigung von steinernen Denkmälern)** E. Pummer (Rossatz, A)

Session XI, cleaning of metal

Chair: W. Zehetner (Vienna, A)

- 14 00 **Keynote VI, Laser cleaning for metal and optimised cleaning processes using different laser pulse durations**
S. Siano (Florence, I)

Poster Session III, restoration applications

Chair: W. Zehetner (Vienna, A), D. Anglos (Heraklion, GR)

14 45

P44. "Coloration effects" in the laser cleaning of stonework; wavelength and pulse duration dependence and quantitative studies on the IR-UV blending approach
G. Totou, P. Pouli, V. Zafirooulos, C. Fotakis (all Heraklion, GR)

P45. Laser cleaning of red stone materials: detection of the harmfulness thresholds using Nd:YAG laser
C. Colombo (Milan, I), E. Martoni (Venice, I), M. Realini (Milan, I), A. Sansonetti (Milan, I), G. Valentini (Milan, I)

P46. Laser cleaning of a Renaissance epitaph made of red limestone with residues of azurite
J. Nimmrichter, R. Linke (both Vienna, A)

P47. Phenomenological characterisation of stone cleaning by different laser pulse duration and wavelength
S. Siano, R. Salimbeni, A. Mencaglia, L. Bartoli (all Florence, I), P. Tiano (Sesto Fiorentino, I), M. Giamello (Siena, I), V. Parfenov (St. Petersburg, RUS)

P48. Lasers and enlightenment at the British Museum
M. Hercules, A. Brodrick (both London, U.K.)

P49. Romanian stone atlas versus laser cleaning
R. Radvan, W. Maracineanu, J. Striber, C. Deciu, M. Similieanu, A. Manolache, R. Savastru, (all Bucharest, RO), D. Pandrea (Braila, RO)

P50. Laser cleaning of sand sculpture
M. Abraham (Los Angeles, USA), J. Asmus (San Diego, USA)

P51. Removal of strong sinter layers from ceramic artworks with Nd: YAG-laser
J. Hildenhausen (Münster, D), K. Dickmann (Münster, D), H.-G. Hartke (Bonn, D)

P52. Laser cleaning the Abergavenny Hoard: a collection of silver coins from the time of William the Conqueror
M. Davis (Cardiff, UK)

P53. Laser cleaning of ancient metal coins: Structural and surface studies of the laser wavelength and energy fluence effects.
E. Drakaki, A. A. Serafetinides, I. Zergioti (all Athens, GR), A. Zervaki (Volos, GR), K. Vlachou (Athens, GR)

P54. Laser-cleaning of an ancient menial armour
M. Biedermann (Stolpen, D), A. Kempe (Dresden, D), M. Panzner (Dresden, D)

P55. Laser cleaning of corroded steel surfaces; a comparison with mechanical cleaning methods
Y. S. Koh (Kiruna, S), J. Powell, A. Kaplan, J. Carlevi (all Lulea, S)

P56. Laser cleaning of monuments' metal surfaces - results of research and transfer into practice
P. Mottner (Bronnbach, D), G. Wiedemann (Dresden, D), G. Haber (Regensburg, D), W. Conrad (Eisleben, D), A. Gervais (Hanover, D)

P57. Restoration of an outdoor brass putto by laser cleaning
W. Conrad (Eisleben, D), J. Ulrich (Berlin, D), G. Wiedemann (Dresden, D)

P58. Study and conservation of the David by Andrea del Verrocchio
S. Siano, L. Nicolai, C. Lalli, S. Porcinai, B. Paolozzi-Strozzi (all Florence, I)

P59. Study on impact of laser irradiation of the artificially patinated bronzeM. Sokhan, D. McPhail, D. Pullen (all London, UK)**P60. Laser-welding as part of the restoration process**R. Jacob (Dresden, D), R. Sonnet (Starnberg, D), M. Wagner, G. Wiedemann (both Dresden, D),**P61. Reconstruction and development of the pillars of the Church of St. Charles in Vienna**C. Ressler (Vienna, A), K. Kraus (Graz, A), W. Höppl (Vienna, A)**P62. 3D laser scanning of Sigismund's Chapel at Wawel Hill in Cracow – geodesy and conservation approach**M. Owsinski (Krakow, PL), A. Rządca (Krakow, PL), R. Szambelan (Warsaw, PL)**P63. Cultural heritage recording using high-resolution 3D-scanning**K. Hanke (Innsbruck, A)**P64. Decontamination of biocide loaded wooden art treasures**E. Jelen (Oberhausen, D), G. Wiedemann (Dresden, D), K. Püschner (Hartmannsdorf, D)**P65. Laser pulse duration effects for the cleaning of wall paintings**A. Andreotti, M. P. Colombini (both Pisa, I), A. Nevin, K. Melessanaki, P. Pouli, C. Fotakis (all Heraklion, GR)**P66. Laser cleaning of stone, stucco and plaster ornamental reliefs, the Benaki Islamic Art Collection, Athens, Greece**Y. Doganis (Athens, GR), A. Galanos (Athens, GR), P. Pouli (Heraklion, GR)**P67. Lasercompany IV****P68. Lasercompany V****P69. Lasercompany VI**

15 30

COFFEE-BREAK & POSTERS

Session XII, restoration applications I

Chair: J. Nimmrichter (Vienna, A)

16 15

Laser cleaning of the Diocletian Peristyle in Split (Croatia)D. Almesberger (Triest, I), A. Rizzo (Triest, I), A. Zanini (Florence, I), R. Geometrante (Triest, I)

16 35

Experimental investigations and removal of encrustations from interior stony decorations of King Sigismund's Chapel at Wawel Castle in CracowA. Koss, J. Marczak, M. Strzelec (all Warsaw, PL)

16 55

Laser cleaning of the stone sculpture at the Cathedral of CremonaM. Abraham (Los Angeles, USA), G. Calcango (Padua, I), J. Asmus (San Diego, USA)

17 15

The cleaning of the Parthenon West Frieze by means of combined ultraviolet and infrared laser radiationK. Frantzikinaki, G. Marakis, A. Panou, C. Vasiliadis, E. Papakonstantinou (all Athens, GR), P. Pouli, Th. Ditsa, V. Zafirooulos, C. Fotakis (all Heraklion, GR)

17 35

Advanced on-site laboratory for European antique heritage restorationR. Radvan, R. Savastru (both Bucharest, RO), G. Papuc (Constanta, RO)

Session XIII, inorganic materials

Chair: M. Matteini (Florence, I)

- 18 15 **Laser cleaning of Avian eggshell**
 L. Cornish, A. Ball, D. Russell (all London, UK)
- 18 35 **Laser engraving gulf pearl shell - aiding the reconstruction of the Lyre of Ur**
 C. Rawcliffe (Birkenhead, UK), M. Aston (Birkenhead, UK), A. Lowings (Petersborough, UK), M. C. Sharp (Petersborough, UK), K. G. Watkins (Liverpool, UK)
- 20 00 ORGAN CONCERT at St. Stephens Cathedral in Vienna
 afterwards: Meeting of the Permanent Scientific Committee

Saturday, September 24, 2005

Session XIV, restoration applications II

Chair: M. Abraham (Los Angeles, USA)

- 08 30 **Use of Nd:YAG laser for cleaning historical metals for the preservation of objects of artistic and cultural value**
A. Gervais (Hanover, D), M. Meier (Hanover, D), P. Mottner (Brombach, D), G. Wiedemann (Dresden, D), W. Conrad (Eisleben, D), G. Haber (Regensburg, D)
- 08 50 **Current work in laser cleaning of the “Doors of Paradise”**
 St. Agnoletti, A. Brini, A. Giusti, L. Nicolai (all Florence, I)
- 09 10 **The application of laser cleaning in the conservation of bronze monuments**
S. Sportun, M. Cooper (both Liverpool, UK)
- 09 30 **Laser cleaning of gildings**
M. Panzner (Dresden, D), G. Wiedemann (Dresden, D), M. Meier (Hanover, D), W. Conrad (Eisleben, D), A. Kempe (Dresden, D), Th. Hutsch (Dresden, D)
- 09 50 COFFEE-BREAK

Session XV, diagnostics and applications

Chair: V. Tornari (Heraklion, GR)

- 10 15 **The evaluation by laser micro-profilometry of morphological changes induced by cleaning works on stone materials**
 C. Colombo (Milan, I), R. Fontana (Florence, I), M. C. Gambino (Florence, I), M. Mastroianni (Florence, I), E. Pampaloni (Florence, I), M. Realini (Milan, I), A. Sansonetti (Milan, I)
- 10 35 **Laser multitask non destructive technology in conservation diagnostic procedures, ENVK4-CT-2002-00096 LASERACT**
V. Tornari (Heraklion, GR), C. Falldorf (Bremen, D), E. Esposito (Ancona, I), R. Dabu (Bucharest, RO), K. Bolas, D. Schipper (Hengelo, NL), M. Stefanaggi (Camps-sur-Marne, F), H. Bonnici (Malta), D. Ursu (Bucharest, RO)
- 10 55 **Time dependent defect inspection assessed by combination of laser sensing tools**
E. Tsiranidou, Y. Orphanos, C. Kalpouzios, V. Tornari (all Heraklion, GR), M. Stefanaggi (Camps-sur-Marne, F)
- 11 15 **A mobile true color topometric sensor for documentation and analysis in art conservation**
Z. Böröcz, D. Dirksen, G. Bischoff, G. von Bally (all Münster, D)
- 11 35 **OptoTop® a new measurement technology for surfaces of historic buildings and monuments cleaned by laser**
 W. P. Weinhold (Würzburg, D), E. Pummer (Rossatz, A), N. Pascua (Madrid, E), Th. Brennan (Monaghan, IRL), R. Burkhardt (Weimar, D), L. Goretzki (Weimar, D)
- 12 00 LUNCH

Session XVI, diagnostics, documentation and applications

Chair: A. Ulrich (Horn, A)

- 14 00 **Multidimensional data analysis of scanning laser Doppler vibrometer measurements: an application to the diagnostics of frescos at the US Capitol**
J. Vignola, J. Bucaro, J. Tressler, D. Ellingston (all Washington DC, USA), A. Kurdila (Gainsville, USA), G. Adams (Washington DC, USA), B. Marchetti, A. Agnani, E. Esposito, E. P. Tomasini (all Ancona, I)
- 14 20 **Some experiences in 3D laser scanning for assisting restoration and tracking damages in cultural heritage**
J. Finat, J. J. Fernández-Martin, J. Martínez, L. Fuentes, J. I. San José (all Valladolid, E)
- 14 40 **Reconstruction of the Pegasus statue on top of the State Opera House in Vienna using photogrammetry and terrestrial and close-range laser scanning**
C. Ressler (Vienna, A)
- 15 00 **Conservation and practical reconstruction of the Baroque staircase of the castle of Aurolzmünster by means of laser tools**
N. Kienesberger (Schüsselberg, A), E. Reichl (Salzburg, A)
- 15 20 **Polish experience with advanced digital heritage recording methodology, including 3D laser scanning, CAD and GIS applications, as the most accurate and flexible response for archaeology and conservation needs at Jan III Sobieski's Residence in Wilanow (Warsaw)**
P. Baranowski, K. Czajkowski, M. Gładki, T. Morysiński, R. Szambelan (all Warsaw, PL)
- 15 40 COFFEE-BREAK

Session XVII, laser documentation techniques and laser cleaning strategies

Chair: G. v. Bally (Münster, D)

- 16 00 **Cultural heritage documentation by combining near-range photogrammetry and terrestrial laser scanning - demonstrating work-flow and data processing with example on St. Stephens Cathedral Vienna, Austria**
N. Studnicka, (Horn, A), F. Zehetner (Vienna, A)
- 16 20 **From 3D scanning to analytical heritage documentation**
M. Schaich (Alterthann, D)
- 16 40 **Laser for documentation and diagnosis of works of art**
J. Linsinger (St. Johann i. Pongau, A)
- 17 00 **Exists a demand of lasercleaning in art conservation?**
E. Pummer (Rossatz, A)
- 17 20 **To what extent can commercial conservation practice in the UK benefit from advances in laser cleaning technology?**
F. Thornton-Jones (London, UK)
- 17 40 **Laser versus conventional methods: do the costs outweigh the benefits?**
P. van Dalen, R. Broere (both NL)
- 18 00 **The practicalities of using a laser in the conservation of stonework**
N. Boyes (Edinburgh, UK)
- 18 20 **The evolution of laser techniques in conservation monitored by COST Action G7**
R. Salimbeni (Florence, I)

Session XVIII, final discussion

with V. Verges-Belmin (Camps sur Marne, F), C. Fotakis (Heraklion, GR), J. Asmus (San Diego, USA),
R. Salimbeni (Florence, I), W. Kautek (Vienna, A)

18 40 final discussion: moderation W. Kautek (Vienna, A)

20 00 Transfer to dinner at a "HEURIGEN"

20 30 Dinner until approx. 24 00

Sunday, September 25, 2005**Session XIX, on-site presentation**

Guided tours by J. Nimmrichter (Vienna, A), E. Pummer (Rossatz, A), W. Zehetner (Vienna, A)

from 10 00 **Laser-treated monuments in Vienna: St. Stephens Cathedral, Minoriten Church,
Parliament**

13 30 LUNCH

16 00 **Official end of the conference**