

ICXOM XVI

July 1, 2001

16:00-20:00 Get together: Registration. Eat, drink, talk.

July 2, 2001

08:00-18:00 Registration

10:00 Opening Session (Main Building, Festsaal)

10:00 Welcome addresses, opening of the conference

10:30 ***Multilayers for the Extreme Ultra-violet, Soft X-ray and X-ray Spectral Domains (Invited)***
Troy W. Barbee, Jr., (Lawrence Livermore National Laboratory, Livermore, USA)

11:15 ***X-Ray Microscopy and X-Ray Optics (Invited)***
Günter Schmahl (Universität Göttingen, Institut für Röntgenphysik, Göttingen, Germany)

12:00 Lunch

13:30 ***High Resolution Energy Dispersive X-Ray Detectors for Low Energy Microanalysis Applications (Invited)***
F. Weber, M. Frank, S. Friedrich, S. E. Labov (Lawrence Livermore National Laboratory, Livermore, USA)

14:00 ***Investigation of High-resolution Superconducting Tunnel Junction Detectors for Low Energy X-ray Fluorescence Analysis (Invited)***
B. Beckhoff, R. Fliegau, G. Ulm (Physikalisch-Technische Bundesanstalt, Berlin, Germany)

14:30 **First Experiences at the Hard X-Ray Beamline BAMline at Bessy II**
W. Görner, A. Berger, W. Diete, M.P. Hentschel, S. Merchel, B.R. Müller, M. Radtke, H. Riesemeier (Bundesanstalt für Materialforschung und -prüfung, Berlin, Germany), G. Ulm, M. Krumrey (Physikalisch-Technische Bundesanstalt, Berlin, Germany), U. Klein (ACCEL Instr. GmbH, Bergisch-Gladbach, Germany), R. Frahm (BUGH Wuppertal, Germany)

14:50 **A New Endstation for X-Ray Microprobe Analysis at the ESRF: ID18F**
M. Drakopoulos, A. Snigirev (ESRF, Grenoble, France), A. Somogyi, L. Vincze, B. Vekemans, L. Kempenaers, F. Adams (University of Antwerp, Belgium)

15:10 Break

15:40 Compton and Rayleigh X-Ray Tomography Scanner

Roberto Cesareo, Antonio Brunetti, Cesare Cappio Borlino, Bruno Golosio (University of Sassari, Italy), Alfredo Castellano (University of Lecce, Italy)

16:00 The Micro-heterogeneity Characterization of Heavy Metals in Low-Z Reference Materials by Means of Synchrotron Micro-XRF

L. Kempenaers, L. Vincze, B. Vekemans, K. Janssens, F. Adams (University of Antwerp, Antwerp, Belgium), M. Drakopoulos, A. Somogyi, A. Snigirev (ESRF Grenoble, France)

16:20 Characterization and Use of Polycapillaries for μ -XRF purposes

M.Haschke (Röntgenanalytik, Taunusstein, Germany)

16:40 Design Features of a High Resolution Microcalorimeter EDX System Based on Pulse Tube and ADR Cooling

Jens Höhne, Mathias Bühler, Roger von Hentig, Theo Hertrich, Doreen Wernicke, Uwe Hess (CSP Cryogenic Spectrometers GmbH, Ismaning, Germany)

18:00 Guided tour through the Rubens Exhibition of the Academy of Fine Arts.

(Buffet)

July 3, 2001

8:30 *The 3-D X-Ray Crystal Microscope: A new Tool for Quantitative Determination of Local Chemistry, Phase, Strain and Deformation in Materials (Invited)*

Gene E. Ice (Oak Ridge National Laboratory, USA)

09:00 Innovative X-Ray Optics for Space and Laboratory

A. Inneman (Centre of Advanced X-ray Technologies, Reflex, Prague, Czech Republic), L.Pina (Czech Technical University, Prague, Czech Republic), R.Hudec (Astronomical Institute, Ondrejov, Czech Republic)

09:20 Multilayer Monochromator with Improved Resolution and Low Background for the Soft-X-Ray Domain

J. M. André, R. Barchewitz, R. Benbalagh (Laboratoire de Chimie Physique, Université Paris 6, France), M. F. Ravet, A. Raynal, B. Pardo, F. Bridou, B. Agius (Laboratoire Charles fabry de l'Institut d'optique, Orsay, France), G. Julié, A.Bosseboeuf, R. Laval (Institut d'Électronique Fondamentale, Orsay, France), C.Rémond, G. Soullié, CEA-DAM, Bruyères-le-Châtel, France), M. Fialin (Centre de Microanalyse CAMPARIS, Université Paris 6, France)

09:40 Moessbauer Gamma-optics of Surface and Multilayers

V.G. Semenov (St. Petersburg State University, St. Petersburg, Russia), M.A. Andreeva (Moscow State University, Russia), S.M. Irkaev (Institute for Analytical Instrumentation, RAS, St. Petersburg, Russia)

10:00 Break

10:30 Recent Progress in Development and Applications of X-Ray Micromirrors

L.Pina, R.Hudec, A.Inneman (Centre of Advanced X-ray Technologies, Reflex, Prague, Czech Republic), N. Loxley, Bowen K., Frazer G., Taylor M. (Bede Scientific Instruments, Bowburn, Durham, UK)

10:50 Ll-, La1,2-, Lb1,2,3,4- and Lg1,2,3-Spectra of X-Ray Tubes Horst Ebel (Vienna University of Technology, Vienna, Austria)

11:10 Study of Implanted Surface Layers by X-Ray Diffraction Methods

J.T Assis, V.I. Monin (Instituto Politécnico-UERJ, Brasil), T. Gurova (PEMM-COPPE/UFRJ, Brazil), E. F. Silveira (PUC-RJ, Brazil)

11:30 Multiphase Mapping Using Orientation Imaging Microscopy

Johannes M. Dijkstra (EDAX Europe, Tilburg, The Netherlands), David J. Dingley, Stuart I. Wright (TSL, subsidiary of EDAX Inc., Draper, UT, U.S.A.)

11:50 Lunch

13:30 *Title be announced (Invited)*

Mary Ann Zaitz (IBM Microelectronics Division, NY, USA)

14:00 Application of the High-Resolution Proton Microprobe (μ PIXE) for Trace Elements Determination in Silicate Minerals

Roberto Cossio (University Torino, Italy), Alessandro Borghi (University Torino, Italy), Claudio Mazzoli (University Padova, Italy), Filippo Olmi, Gloria Vaggelli (Centro Minerogenesi e Geochimica Applicata - C.N.R. Firenze, Italy)

14:20 Depth Selective Chemical State Analysis of Pb and S in Flyash in Municipal Solid Waste Incinerators Using X-Ray Absorption

Jun Kawai (Kyoto University, Japan), Susumu Tohno (Kyoto University, Japan), Yoshinori Kitajima (Photon Factory, KEK, Japan), Orlando E. Raola (University of California Santa Barbara, USA) Masaki Takaoka (Kyoto University, Japan)

14:40 Analysis of Trace Metal in Teeth Using X-Ray Fluorescence

M.J. Anjos, R.C. Barroso (University of Rio de Janeiro State, Brazil), M.J. Anjos, D. Braz; R. T. Lopes (Nuclear Instrumentation Laboratory, Rio de Janeiro, Brazil)

15:00 Formation of Binary and Ternary Metal Deposits on Glass-Ceramic Carbon Electrode Surface EPMA, TXRF, XPS and SEM Study

Nikolai V. Alov, Kirill V. Oskolok (Lomonosov Moscow State University, Russia)

15:20 Break

15:50 Concentration Distribution of Trace Elements: From Normal Distribution to Lévy flights

A. Kubala-Kukus, D. Banas, J. Braziewicz, U. Majewska, M. Pajek (Swietokrzyska Academy, Kielce, Poland)

16:10 **Large Area Quantitative X-Ray Mapping of (U, Pu)O₂ Nuclear Fuel Pellets Using Wavelength Dispersive Electron Probe Microanalysis**

Stéphane Brémier, Clive T. Walker (European Commission, JRC, Institute for Transuranium Elements, Karlsruhe, Germany)

16:30 **Limitations and Prospects of Biological Electron Probe X-Ray Microanalysis**

Karl Zierold (Max-Planck-Institut für molekulare Physiologie, Dortmund, Germany)

16:50 **New Approach to Calculation of Diffuse Scattering from Rough Surfaces and Interfaces in Nanostructures**

A.Ulyanenkoy, H.Ress (Bruker AXS, Karlsruhe, Germany), I.Feranchuk, A.Minkevich (Belorussian State University, Minsk, Belarus), J.Grenzer (Potsdam University, Potsdam, Germany)

19:00 Reception by the Mayor of Vienna in the City Hall of Vienna (Buffet)

July 4, 2001

08:30-11:30 Poster-session

Poster are mounted on Tuesday, July 3rd and removed on Thursday, July 5th. Authors should be available at their poster(s) for discussions on Wednesday during the Poster Session

12:30 (prospective) ½ Day Excursion

July 5, 2001

08:30 ***Quantification Procedures for Micro-X-Ray Fluorescence Analysis (Invited)***
Birgit Kanngiesser (Technical University Berlin, Germany)

09:00 **The Identification of Soft X-Ray Lines**

Andrea Aßmann, Michael Wendt (Institut für Physikalische Hochtechnologie, Jena, Germany)

09:20 **Opposite Dependencies of Secondary Electron Yields on Work Function for Metals measured by Electron and Ion Impact**

Masato Kudo, Yuji Sakai (JEOL Ltd, Akishima, Tokyo, Japan), Taekeo Ichinokawa (Waseda University, Tokyo, Japan)

09:40 **Monte Carlo Simulation for X-Ray Fluorescence and Absorption Spectrometry**

L. Vincze, K. Janssens, B. Vekemans, K. Proost, A. Somogyi, F. Adams (University of Antwerp, Belgium), M. Drakopoulos, A. Snigirev (ESRF, Grenoble, France)

10:00 **Solid-state Specification by Means of Micro x-Ray Absorption Near Edge Structure (XANES) Spectroscopy**
K. Proost, L. Vincze, K. Janssens, F. Wei (University of Antwerp, Belgium),
G. Falkenberg (HASYLAB at DESY, Hamburg, Germany), Y. Yan (Laboratory for
Low Energy Physics, Beijing, P.R. China)

10:20 Break

10:50 **ArtTAX®: A New Mobile Spectrometer for Micro X-Ray Fluorescence Spectrometry on Art and Archaeological Objects**
Heike Bronk, Stefan Röhrs (Technische Universität Berlin, Germany),
A. Bjeoumikhov, N. Langhoff, J. Schmalz, R. Wedell (IfG-Institut für Gerätebau
GmbH, Berlin, Germany), H.-E. Gorny, A. Herold, U. Waldschläger (INTAX, Berlin,
Germany)

11:10 **SRXRF - Non-destructive Analysis of Archaeologic (16th Century) Glass Beads**
M. O. Figueiredo (CENIMAT, New University Lisbon, Portugal), J.P.Veiga,
T.Pereira da Silva (IICT, Lisbon, Portugal)

11:30 **Analytical Approach of 12th -13th Century Mosan Enamels Found on Belgian Masterpieces of Metalwork Art**
Helena Wouters (Royal Institute for Cultural Heritage, Brussels, Belgium)

11:50 **A Dating Method for Archaeological Quartz Artifacts Based on the Measurement of Hydrogen Depth Profiles**
O. Dersch, F. Rauch (J.W.Goethe-Universität, Frankfurt am Main, Germany),
J. E. Ericson (University of California, Irvine, USA)

11:50 Lunch

13:30 *Use of Microscopic XRF for Non-destructive Analysis in Art and Archaeometry (Invited)*
K. Janssens (University of Antwerp, Belgium)

14:00 **Analysis of Inks and Pigments in Historical Illuminated Manuscripts and Documents Using Micro X-Ray Fluorescence Spectrometry**
Oliver Hahn (Technische Universität Berlin, Germany), Hans-Eberhard Gorny (intax-
GmbH, Berlin, Germany)

14:20 **Characterising the Morphology of Yellow Chromium-based Artists' Pigments using Scanning Electron Microscopy**
Chris G. Jones (The Natural History Museum, London, UK), Aviva R. Burnstock
(Courtauld Institute of Art, London, UK)

15:40 **Examination of Samurai Swords by X-Ray Diffraction and Electron Microanalysis**
Robert E. Ogilvie (Massachusetts Institute of Technology, Cambridge, MA, USA)

15:00 **Characterization of Ancient Stained Glasses by Means of Electron Microscopy and Microanalysis**

S. Bruni, G. Maino (ENEA, Bologna, Italy), S. Guidi, G. Maino (University of Bologna, Ravenna, Italy), L. Pilotti (ENEA, Faenza, Italy)

15:20 Break

15:50 **A Re-examination of the Type Specimen of Columbite from which Columbitum (Niobium) was Discovered 200 Years ago**
C. Terry Williams, Frances Wall, Terry R. R. Greenwood, Peter Tandy (The Natural History Museum, London, UK)

16:10 **The Color of Silver Stained Glass - Analytical Investigations Using XRF, SEM/EDX and RBS**
D. Jembrih-Simbürger, (Vienna University of Technology, Austria), M. Schreiner (Academy of Fine Arts, Vienna, Austria), K. de Vis, J. Caen (Hogeschool Antwerpen, Belgium), O. Schalm (University of Antwerp, Belgium), C. Neelmeijer, M. Mäder (Research Centre Rossendorf Inc., Germany)

16:30 **Adulterations in First Century B. C.: The Case of Greek Silver Drachms Analysed by XRF and PIXE**
Bogdan Constantinescu (Institute of Atomic Physics, Bucharest, Romania)

19:00 Conference Dinner

July 6, 2001

08:30 ***Synchrotron Radiation Induced TXRF for Ultra Trace Analysis (Invited)***
C.Streli (Atominstytut der Österreichischen Universitäten, Vienna, Austria)

09:00 **A Morphology Study of Internal Oxidation in Carburised Steels by Combined Glow Discharge Optical Emission Spectroscopy (GDOES) and SEM**
X. An, J. Cawley (Sheffield Hallam University, UK), M. Rainforth (Sheffield University, UK)

09:20 **Comparison of Various Quantitative Analysis Obtained by Electron Microanalyse. Application to Corium Materials**
N. Guilbaud, D Blin, P. Perodeaud, O. Dugne (DCC/DTE/SIM, Pierrelatte, France), C. Merlet (ISTEEM CNRS, Université de Montpellier II, France)

09:40 **Grazing-angle Incidence X-Ray Diffraction Curves of Si_{1-x}G_x Thin Layer if the Composition Coefficient (x) is Varying Harmonically along the Flat Layer Surface**
P.A. Bezirganyan, Jr. (State Engineering University of Armenia, Yerevan, Armenia), A.P. Bezirganyan, S.E. Bezirganyan (Yerevan State University, Yerevan, Armenia), K.O. Hovnanyan (Dep. of Electron Microscopy, Institute of Molecular Biology NAS RA, Yerevan, Armenia)

10:00 Break

10:30 **Morphology, Chemistry and Electronic Properties of Metal/n-GaN Interfaces**
A. Barinov, L. Casalis, L. Gregoratti, B. Kaulich, M. Kiskinova (Sincrotrone Trieste, Trieste, Italy)

10:50 **Intelligent Electron Probe Microanalysis Automation Using Spectra Simulation**
C. Fournier, P.-F. Staub (CAMECA, Courbevoie, France), C. Merlet (ISTEEM, CNRS, Université de Montpellier II, Montpellier, France)

11.10 **Comparative Study of Trace Element Contents in Human Full-Term Placentae and Fetal Membranes by Total Reflection X-Ray Fluorescence**
A. Kubala-Kukus, D. Banas, J. Braziewicz, U. Majewska, M. Pajek (Institute of Physics, Swietokrzyska Academy, Kielce, Poland)

11:30 Young Scientists Award for the best contribution during ICXOM-XVI

12:00 Farewell Lunch (*The brave speakers of the last day and the winner of the Young Scientists Award are cordially invited by ICXOM*)