European Workshop on Quantitative Analysis in X-ray Fluorescence Spectrometry

Ghent University, Belgium – October 13-14, 2005
Location: "Het Pand", Onderbergen 1, B-9000 Gent, Belgium

Programme

Session 1: Fundamental Parameter methods. (09:00 – 12:00, October 13, 2005), Chairperson: P. Van Espen, University of Antwerp

08:30 – 09:00 Registration

09:00 – 09:15 Welcome and opening remarks, L. Vincze, *Ghent University, Belgium*
09:15 – 10:00 "50 years Sherman's equations: What is the future?",
Michael Mantler, *Vienna University of Technology, Vienna, Austria*
(keynote lecture)
10:00 – 10:30 "Quantitative Analysis with Fundamental Parameter methods"
Peter Brouwer, *PANalytical, Almelo, The Netherlands*

10:30 – 11:00 Coffee break

11:00 – 11:20 "Completely reference-free X-ray fluorescence analysis for the investigation of nano-layered materials"
Michael Kolbe, B. Beckhoff, M. Krumrey, G. Ulm
Physikalisch-Technische Bundesanstalt (PTB), Berlin, Germany
11:20 – 11:40 "Quantification of SR-XRF Measurements at the BAMline, BESSY",
Martin Radtke, *Bundesanstalt für Materialforschung (BAM), Berlin, Germany*
11:40 – 12:00 "Absolute determination of resonant Raman scattering cross sections for silicon",
Matthias Müller [1], B. Kanngießer [2], B. Beckhoff [1], G. Ulm [1]
[1] *Physikalisch-Technische Bundesanstalt (PTB),* [2] *Technical University of Berlin, Berlin, Germany*

Session 2, "Quantitative Micro-XRF" (14:00 – 18:00, October 13, 2005), Chairperson: Szabina Török, KFKI, Budapest

14:00 – 14:45 "Quantitative micro-XRF: how much of that element is in there?"
George Havrilla, *Los Alamos National Laboratory, Los Alamos, USA*
(keynote lecture).
14:45 – 15:15 "XRF microanalysis at ANKA",
Rolf Simon, *Institute for Synchrotron Radiation, Forschungszentrum Karlsruhe, Karlsruhe, Germany*
15:15 – 15:45 "Hard X-Ray Nanoprobe"
Christian Schröer, *HASYLAB, Hamburg, Germany*

15:45 – 16:15 Coffee break

16:15 – 17:00 General Assembly of EXSA

17:00 – 18:30 Poster Session and reception

Session 3. "Three-dimensional XRF spectroscopy" (09:00 – 10:00, October 14, 2005), Chairperson: Maria Luisa de Carvalho, University of Lisbon, Portugal

09:00 – 09:30 "A fundamental parameter approach to quantification problems in 3D XRF spectroscopy"
Wolfgang Malzer, B. Kanngießer, N. Mantouvalou, Y. Höhn
Technical University of Berlin, Germany

09:30 – 10:00 "3D Micro-XRF Data Analysis"
Bart Vekemans [1], L. Vincze [2] and K. Janssens [1]
[1] University of Antwerp, [2] Ghent University, Belgium

10:00 – 10:30 Coffee break

Session 4: "Monte Carlo based quantitative approaches, auxiliary effects and applications in XRF-spectrometry"
(10:30 – 12:30, October 14, 2005)
Chairperson: R. Van Grieken, University of Antwerp

10:30 – 11:00 "Status of the Monte Carlo – Library Least-Squares (MCLLS) approach for XRF analysis with application to error analysis"
Robin P. Gardner, *Center for engineering, Applications of Radioisotopes, Nuclear Engineering Department, North Carolina State University, Raleigh, North Carolina 27695-7909 USA*

11:00 – 11:30 "Quantitative X-ray microanalysis of individual particles using Monte Carlo simulations"
János Osán, *KFKI, Budapest, Hungary*

11:30 - 11:50 "Enhancement of X-ray fluorescence intensities of light elements by photoelectron secondary excitation"
B. Beckhoff [1], M. Gerlach [1], M. Kolbe [1], M. Müller [1], G. Ulm [1], A.G. Karydas [2], Ch. Zarkadas [2], T. Geralis [2], K. Kousouris [2], N. Kawahara [3], T.Yamada [3] and M. Mantler [4]
[1] Physikalisch-Technische Bundesanstalt (PTB), Germany , [2] N.C.S.R "Demokritos", Greece, [3] Rigaku Industrial Corp., Japan, [4] Vienna University of Technology, Vienna, Austria

11:50 – 12:20 "Micro-XRF and XANES applications to quantify trace-element contents and valence state in geological samples"
Max Wilke, *University of Potsdam, Germany*

12:20 – 12:30 Closing remarks

Poster Session *(17:00 – 18:00, October 13, 2005)*

"Modeling the fine structure in spectra from silicon X-ray detectors using Monte-Carlo methods"
Brian Cross
CrossRoads Scientific, El Granada, CA, USA

"The internal Compton scattering technique compared to fundamental parameter approaches for trace elements analysis in geological samples"
D. Sokaras [1,2], A. G. Karydas [1] and Ch. Zarkadas [1]
[1]Institute of Nuclear Physics, N.C.S.R "Demokritos", [2] National Technical University of Athens, Greece

"Quantification using a milli-beam XRF spectrometer"
A.G. Karydas [1], Ch. Zarkadas [1], T. Grammatikopoulos [2], V. Kantarelou [1] and D. Sokaras [1,2]
[1]Institute of Nuclear Physics, N.C.S.R "Demokritos", [2] National Technical University of Athens, Greece

"Influence of X-Ray analysis on volatile compounds present in atmospheric aerosols"
K. Van Meel, M. Stranger, Z. Spolnik, A. Worobiec and R. Van Grieken,
University of Antwerp, Antwerp, Belgium

"Applications of laboratory Micro-XRF"
W. Klöck
Röntgenanalytik Messtechnik GmbH, Taunusstein, Germany

"Synchrotron micro-XRF characterization of electrochemically modified gold electrodes"
K. Peeters, K. De Wael, L. Vincze, A. Adriaens
Ghent University, Ghent, Belgium

"Quantitative trace-element analysis of individual fly-ash particles by means of micro-XRF"
L. Vincze [1], A. Somogyi [2], J. Osán [3], B. Vekemans [4], S. Török [3], K. Janssens [4] and F. Adams [4]
[1] Ghent University, Belgium, [2] Synchrotron SOLEIL, France, [3] Hungarian Academy of Sciences, KFKI Atomic Energy Research Institute, Budapest, Hungary, [4] University of Antwerp, Belgium

"Study of biological microstructures by X-ray fluorescence microtomography"
I. Szalóki [1], Gy. Záray [2], B. Vekemans [3], G. Falkenberg [4], R. Van Grieken [3], L. Vincze [5]
[1] Institute of Experimental Physics, University of Debrecen, Hungary
[2] Joint Research Group of Environmental Chemistry of Hungarian Academy of Sciences and L. Eötvös University, Budapest, Hungary
[3] University of Antwerp, Belgium
[4] HASYLAB at DESY, Hamburg, Germany
[5] Ghent University, Ghent, Belgium

"Actinide analysis of hot particles from the nuclear fuel cycle"
A. Alsecz[1], J. Osán[1], S. Török[1], G. Falkenberg[2]
[1] Hungarian Academy of Sciences, KFKI Atomic Energy Research Institute, Budapest, Hungary, [2] HASYLAB at DESY, Hamburg, Germany

“Fluorescence radiation yield from the cup layer of bicrystal in configuration of grazing-angle incidence X-ray backscattering diffraction”

[1] Hakob (Akop) P. Bezirganyan, [1] Hayk H. Bezirganyan, [2] Siranush E. Bezirganyan, [3] Petros H. Bezirganyan Jr.,

[1] Yerevan State University, [2] Yerevan State Medical University, [3] State Engineering University of Armenia, Yerevan City, Republic of Armenia