

DENVER X-RAY CONFERENCE

CALL FOR PAPERS



**65th Annual Conference
on Applications of
X-ray Analysis**

1-5 August 2016

The Westin O'Hare Hotel, Rosemont, Illinois, USA

**Plenary session: Imaging at Current
and Next Generation Synchrotrons**

The DXC invites papers in all areas of X-ray analysis. The size and congeniality of the conference make it ideal for presenting your work, interacting with colleagues, and seeking the advice of experts.

**DEADLINE FOR SUBMISSION
OF ABSTRACTS**

29 February 2016

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Sponsored by



SPECIAL SESSIONS

Wednesday, Thursday & Friday

Session titles, chairs and invited speakers listed below:

PLENARY SESSION

Imaging at Current and Next Generation Synchrotrons

Chair: **B. Toby**, Advanced Photon Source, Argonne National Laboratory, Lemont, IL, USA

- *Mapping Trace Metals with X-ray Fluorescence Microscopy: Advances, Applications, and Unique Opportunities*
S. Vogt, X-ray Science Division, Argonne National Laboratory, Lemont, IL, USA
- *X-ray Imaging at the Advanced Photon Source from Data Intensive to Data Driven*
F. De Carlo, Advanced Photon Source, Argonne National Laboratory, Lemont, IL, USA
- *Keynote Address: 100 Years of Powder Diffraction*
T. Fawcett, ICDD, Newtown Square, PA, USA

SPECIAL TOPICS IN X-RAY ANALYSIS

New Developments in XRD & XRF Instrumentation

Chairs: **T. Fawcett**, **T. Blanton** ICDD, Newtown Square, PA, USA, fawcett@icdd.com; tblanton@icdd.com

Abstracts should be submitted by technical representatives of a manufacturer. They should discuss specifications, and applications concerning one of their newest and most important products. Talks should include comments about software, XRD and XRF equipment, and accessories. No mention of prices or a comparison with competitors' products can be included.

X-ray Imaging

Co-Chairs: **M. Behr**, The Dow Chemical Company – MIOPS, Midland, MI, USA, mjbehr@dow.com

M. Denecke, Dalton Nuclear Institute, The University of Manchester, Manchester, United Kingdom, melissa.denecke@manchester.ac.uk

G. Havrilla, Los Alamos National Laboratory, Los Alamos, NM, USA, havrilla@lanl.gov

- *X-ray Fluorescence Microscopy for 3D Trace Metal Mapping*
S. Vogt, X-ray Science Division, Argonne National Laboratory, Argonne, IL, USA
- *Chemical Imaging of Catalytic Materials and Beyond*
A. Beale, UK Catalysis Hub and University College of London, Oxford, United Kingdom
- *Chemical Imaging with High Resolution and Sensitivity using Coherent Hard X-rays*
C. Schroer, DESY/PETRAIII, Hamburg, Germany
- *Element and Species-specific Imaging from the Meter to the nm Scale for Exploration of Works of Art*
K. Janssens, University of Antwerp, Antwerp, Belgium

Cultural Heritage

Chair: **R. van Grieken**, University of Antwerp, Antwerp, Belgium, rene.vangrieken@uantwerpen.be

- *Synergy of Nuclear, Atomic and Molecular Methodologies Applied to the Study of Cultural Heritage - The Prominent Role of XRF*

C.R. Appoloni, Physics Department at the State University of Londrina, Londrina, Brazil

- *Portable EDXRF for Cultural Heritage: The Need for a Multidisciplinary Approach*

S. Ridolfi, Ars Mensurae, Rome, Italy

X-ray Optics

Chair: **K. Janssens**, University of Antwerp, Antwerp, Belgium, koen.janssens@uantwerpen.be

- *3D Confocal XRF Microscopy with 2 μm^3 Resolution From 2-20 keV Using Collimating Channel Arrays*

A.R. Woll, Cornell University, Cornell Synchrotron Centre CHESS, Ithaca, NY, USA

- *Spectromicroscopy Instrumentation and Techniques with Synchrotron and Laboratory X-ray Sources*

S. Hayakawa, University of Hiroshima, Higashi-Hiroshima, Japan

- *Three Dimensional Imaging at the Hard X-ray Micro/Nano-Probe*

J. Garrevoet, Deutsches Elektronen-Synchrotron DESY, Hamburg, Germany

XRD

General XRD

Chair: **C. Murray**, IBM T.J. Watson Research Center, Yorktown Heights, NY, conal@us.ibm.com

Welcoming abstracts in all areas of X-ray diffraction and related techniques.

Stress Analysis

Chair: **T.R. Watkins**, Oak Ridge National Laboratory, Oak Ridge, TN, watkinstr@ornl.gov

- *New Multi-axial Straining Devices for Neutron Diffraction*

T. Gnaeupel-Herold, NIST, Gaithersburg, MD, USA

Applied Materials

Chairs: **T. Fawcett**, **T. Blanton**, ICDD, Newtown Square, PA, fawcett@icdd.com; tblanton@icdd.com

- *X-ray Diffraction Investigations in the Smithsonian Gem and Mineral Collection*

J. Post, Smithsonian Institution, Washington, DC, USA

Rietveld

Chair: **S. Lapidus**, APS - Argonne National Laboratory, Argonne, IL, USA, slapidus@aps.anl.gov

- *Unraveling Structural Details in Negative Thermal Expansion Materials*

C. Lind-Kovacs, The University of Toledo, Department of Chemistry & Biochemistry, Toledo, OH, USA

- *Structure Solution from Powder Data using a Symmetry-mode Parameter Set*
B.J. Campbell, Brigham Young University, Department of Physics & Astronomy, Provo, UT, USA
- *Manifestation of Itinerant Magnetism in Hole-doped Iron Arsenide Superconductors*
J. Allred, University of Alabama, Department of Chemistry, Tuscaloosa, AL, USA

High Energy X-ray Microscopy – full day

Chair: **J. Almer**, APS - Argonne National Laboratory, Argonne, IL, USA, almer@anl.gov

Co-Chair: **S. Stock**, Feinberg School of Medicine, Northwestern University, Chicago, IL, USA, s-stock@northwestern.edu

- *X-ray Diffraction Tomography of Polycrystalline Materials: Present and Future*
S. Stock, Feinberg School of Medicine, Northwestern University, Chicago, IL, USA
- *Multi-scale and Multi-informative Imaging of Structural Materials*
M. Kimura, Institute of Materials Structure Science, High Energy Accelerator Research Organization, Ibaraki, Japan

XRF

General XRF

Chair: **M. Schmeling**, Loyola University Chicago, Chicago, IL, USA, mschmel@luc.edu

- *XRS of Atmospheric Aerosols for Preventive Conservation and Climate Change Research*
R. Van Grieken, University of Antwerp, Antwerp, Belgium
- *Title to be announced*
A. Pejovic-Milic, Ryerson University, Toronto, Ontario, Canada
- *Particle Induced X-ray Screening of Consumer Products for Flame Retardants*
G. Peaslee, Hope College, Holland, MI, USA

Quantitative Analysis

Chair: **L.L. Brehm**, Dow Chemical Company, Midland, MI, USA, llbrehm@dow.com

- *When is Accreditation and Quality Assurance systems not enough to guarantee accurate analysis?*
M. Loubser, PPC Ltd., Johannesburg, South Africa
- *Quantitative Analysis for the PIXL Mars2020 Micro-XRF Instrument*
W.T. Elam, Applied Physics Laboratory, University of Washington, Seattle, WA
- *Rapid and Accurate Determination of Iron in Vitamins and Supplements via XRF*
P.T. Palmer, San Francisco State University, San Francisco, CA

Industrial Applications

Chair: **D. Broton**, Construction Technology Labs, Skokie, IL, USA, dbroton@ctlgroupp.com

- *X-rays in Cement Production*
E. Watson, Holcim (US) Inc., Bloomsdale, MO, USA

Trace Analysis

Chair: **M.A. Zaitz**, IBM, Hopewell Junction, NY, USA, zaitz@us.ibm.com

Co-Chair: **A. Martin**, Thermo Fisher Scientific, The Woodlands, TX, USA, al.martin@thermofisher.com

- *Analytical Options for Trace Analysis in WDXRF*
A. Martin, Thermo Fisher Scientific, The Woodlands, TX, USA
- *Title to be announced*
R. Ayala, Fisichem Inc., Guatemala City, Guatemala

SPECIAL 2 DAY SESSION*

Biological Applications of X-ray Fluorescence Microscopy – Biomedical Applications; Plant/Environmental/Microbial Science; Related Technique and Methods Development

Chair: **S. Vogt**, X-ray Science Division, Argonne National Laboratory, Argonne, IL, USA, svogt@aps.anl.gov

Co-Chairs: **G. Woloschak**, Northwestern University, Feinberg School of Medicine, Chicago, IL, USA, g-woloschak@northwestern.edu

T. Lanzirotti, GSECARS, The University of Chicago, Chicago, IL, USA, lanzirotti@uchicago.edu

- *Title to be announced*
T.V. O'Halloran, Northwestern University, Evanston, IL, USA
- *The Role of Copper in Neurodegeneration in Cerebral Amyloid Angiopathy*
L. Miller, Brookhaven National Laboratory, Upton, NY, USA
- *XFM and XAS Combined Yield Insight on Mammalian Selenium Biochemistry*
H. Harris, University of Adelaide, Adelaide, Australia
- *Marriage of X-ray Spectroscopy and Microscopy for Trace Element Analysis in Biological and Environmental Systems*
B. Mishra, Illinois Institute of Technology, Chicago, IL, USA
- *Illuminating the Redistribution Dynamics of Trace Metals during Cell Proliferation and Embryonic Development*
C. Fahrni, Georgia Institute of Technology, Atlanta, GA, USA
- *2D/3D Trace-element Studies in Frozen-hydrated Single Cells at the Bionanoprobe*
S. Chen, Argonne, National Laboratory, Lemont, IL, USA
- *Applications of X-ray Tomography across Multiple Length Scales*
P. Pianetta, Stanford University, Stanford, CA, USA

*Special registration required, please contact Denise Zulli for more information: Zulli@icdd.com; 610-325-9814.

Abstracts are hereby solicited for oral presentations in any of the special sessions listed, as well as the XRD & XRF general sessions. Abstracts are also being solicited for the XRD and XRF poster sessions. Poster sessions will be held on Monday (XRD) and Tuesday (XRF) evening of conference week, in conjunction with the evening receptions.

Abstracts should be submitted online. Please visit our website for abstract preparation guidelines and submission instructions: www.dxcicdd.com. Please also monitor our web site regularly for updates to the Technical Program.

DEADLINE FOR SUBMISSION OF ABSTRACTS

WORKSHOPS

Monday & Tuesday

Please visit our website for a description of each workshop and a list of instructors.

Special Topics in X-ray Analysis

- Fundamentals of X-ray Absorption Spectroscopy
- Two-dimensional Detectors
- Amorphous & Disordered Materials – Full Day
- Synergies between Laboratory and Synchrotron X-ray Methods

XRD

- Basic to Intermediate XRD – Full Day
- Rietveld for Beginners
- Advanced Rietveld
- Structure Solution – Full Day
- Diffraction Contrast Imaging – Full Day

XRF

- Basic XRF
- XRF Sample Preparation
- Energy Dispersive XRF
- Quantitative Analysis – Full Day
- Micro XRF
- Trace Analysis

2016 DATES TO REMEMBER

Exhibit space opens	February
Deadline for submission of abstracts	29 February
Conference Program available on-line	May
Deadline to submit for Cohen Student Award	1 June
Deadline to submit for Robert L. Snyder Student Award	1 June
Deadline for Pre-registration discount fee	1 July
Deadline to apply for a Student Room	1 July
Deadline to book host hotel room at conference rate	9 July
Deadline for submission of manuscripts	9 September

REGISTRATION FEES

Please see our website for registration and cancellation policies.

	by July 1	after July 1
Full week: exhibits, workshops, sessions*	\$675	\$750
Monday & Tuesday: exhibits, workshops*	\$625	\$700
Wednesday, Thursday & Friday: exhibits, sessions*	\$625	\$700
Workshop Instructor*	\$225	\$225
Session Organizer; Invited Speaker*	\$275	\$275
Student (I.D. required)	\$275	\$350
Unemployed; 65 and older	\$300	\$375

*Includes a copy of Conference Proceedings, Volume 60, Advances in X-ray Analysis

Also on our website: Hotel and Travel Details; Student Housing, Awards & Grants; Exhibits/Sponsorships; Conference Proceedings and Registration.

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