

Call For Papers

58th Annual Conference on Applications of X-ray Analysis Denver X-ray Conference

27–31 July 2009

Crowne Plaza Hotel

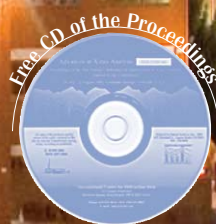
Colorado Springs, CO U.S.A.

Plenary session: Getting the Lead Out—Again!

Training & Applications

Techniques & Instrumentation

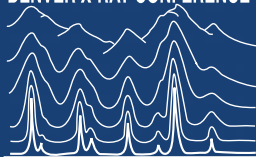
Exhibits, Workshops, Sessions



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DENVER X-RAY CONFERENCE®



Sponsored by International Centre for Diffraction Data



WORKSHOPS MONDAY & TUESDAY, 27 & 28 JULY

The exact date & time of each workshop will not be determined until April 2009.

XRD & XRF

X-RAY SOURCES/OPTICS DEVELOPMENT AND INTEGRATION

Organizers and Instructors:

A. Khounsary, APS—Argonne National Laboratory, Argonne, IL, amk@aps.anl.gov

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

J. Wiesmann, Incoatec GmbH, Geesthacht, Germany

G. Rosenbaum, Argonne National Laboratory, Argonne, IL

S. Kamtekar, N. Gao, X-ray Optical Systems, Inc., East Greenbush, NY

Source-optics integration to provide high X-ray throughput is of paramount importance for efficient utilization of any X-ray source. There are several optical systems each with its own characteristics, capabilities, advantages and disadvantages and unique application niches. This workshop will provide basic knowledge about X-ray optics (such as multilayer optics, polycapillary optics, doubly curved crystal optics, and monocalipillary optics) with emphasis on the integration of optics and the source. One of the objectives in this workshop is to help users understand the basic working principles and performance characteristics of these optics. Attendees will learn the selection, function, and capabilities of an X-ray optical system for optimal source-optics performance.

ADVANCES IN DETECTOR TECHNOLOGY

Organizer and Instructors:

T.N. Blanton, Eastman Kodak Company, Rochester, NY, thomas.blanton@kodak.com

M. Fransen, PANalytical B.V., Almelo, The Netherlands

B.B. He, Bruker AXS, Madison, WI

P. Salficky, Dectris Ltd., Villigen, Switzerland

Recent advances in X-ray detectors used for XRD and XRF allow for measurements with high sensitivity, high speed, and high accuracy. New detectors for phase identification, elemental analysis, texture, structure elucidation, etc., are available for users to take advantage of today. This workshop will cover recent developments in theory, instrumentation, data collection and analysis, as well as advantages and disadvantages of advanced X-ray detectors used for materials characterization.

XRD

QUANTITATIVE RIETVELD ANALYSIS—FULL DAY

Organizers and Instructors:

S.T. Misture, NYS College of Ceramics at Alfred University, Alfred, NY, misture@alfred.edu

R.L. Snyder, Georgia Institute of Technology, Atlanta, GA, bob.snyder@mse.gatech.edu

A. Kern, Bruker AXS GmbH, Karlsruhe, Germany

As Rietveld analysis has become popular, the applicability in quantitative phase analysis has become clear. The workshop will center on the use of Rietveld analysis for quantitative phase analysis but will begin with a general description of the method for the novice user. We will focus, however, on the pitfalls and traps, then provide tips for successful quantification using Rietveld analysis. More advanced topics will include analysis of specimens with amorphous content, as well as an evaluation of the likely errors in the analysis.

PHASE IDENTIFICATION—METHODS AND TOOLS

Organizer and Instructors:

T.G. Fawcett, International Centre for Diffraction Data, Newtown Square, PA, fawcett@icdd.com

C. E. Crowder, S.N. Kabekkodu, International Centre for Diffraction Data, Newtown Square, PA

Integration of powder and single crystal databases has resulted in tremendous growth in the Powder Diffraction File™. Over 650,000 material data sets have been published with PDF-4+ and PDF-4/Organics each exceeding 300,000 entries. Each entry is also getting more complex in terms of content and context, whereby bibliographic information, quality analyses, physical properties and experimental conditions are recorded. The growth in entry numbers, context, and content alters, and significantly improves, the phase identification processes. The workshop will focus on improved methods for phase identification that utilize data mining, pattern simulation, and multivariate analyses. We will also discuss methods used to evaluate the phase identification results and performance.

WORKSHOPS MONDAY & TUESDAY, 27 & 28 JULY

LINE PROFILE ANALYSIS

Organizers and Instructors:

I.C. Noyan, *Columbia University, New York, NY, icn2@columbia.edu*

D. Balzar, *University of Denver, Denver, CO, balzar@du.edu*

Line profile analysis has evolved into a powerful technique for assessing crystallite size, strain, and defects in materials. The workshop will focus on the determination of these properties by Rietveld refinement and other Whole Powder Pattern Fitting (WPPF) programs. A brief theoretical overview will be followed by a practical tutorial with recipes and examples of the determination of crystallite-size distribution and dislocation density in different materials.

STRUCTURE SOLUTION

Organizer and Instructors:

S.T. Misture, *NYS College of Ceramics at Alfred University, Alfred, NY, misture@alfred.edu*

A. Kern, *Bruker AXS GmbH, Karlsruhe, Germany*

This workshop will focus on extracting crystal structures from powder diffraction data. As a first step, we will cover the process of indexing powder patterns using modern software with error corrections. Structure solutions using the simulated annealing and charge flipping approaches will be highlighted. In particular, we will show how heavy atom and equal atom problems can be approached using the two different methods. For the simulated annealing approach, we will demonstrate the use of individual atoms as well as the use of rigid bodies. Finally, the workshop will include a discussion of Fourier synthesis and chemical knowledge to reach full descriptions of structures.

PAIR DISTRIBUTION FUNCTION

Organizer and Instructors:

V. Petkov, *Central Michigan University, Mt. Pleasant, MI, petkov@phy.cmich.edu*

M. Gateshki, *PANalytical B.V., Almelo, The Netherlands*

P. Chupas, K. Chapman, *Argonne National Laboratory, Lemont, IL*

This workshop will offer practical training on in-house (Gateshki) and synchrotron (Chupas) high-energy X-ray diffraction experiments aimed at atomic PDFs analysis. Introduction to PDFs basics and training on 3D structure determination/refinement based on atomic PDFs will also be done (Petkov and Chapman).

XRF

BENEFITS AND LIMITATIONS OF HANDHELD XRF

Organizer and Instructors:

K. Russell, *Innov-X Systems, Woburn, MA, krussell@innovxsys.com*

M. Kreiner, *Oxford Instruments, Elk Grove Village, IL*

S. Piorek, *Thermo Fisher Scientific, Billerica, MA*

B. Kaiser, *Bruker AXS, West Jordan, UT*

P. Palmer, *San Francisco State University, San Francisco, CA*

This workshop will give an overview of Handheld XRF as a powerful analytical tool on its own, as well as in conjunction with other analytical techniques. The benefits and limitations of Handheld XRF will be illustrated through discussions of its technology; its application in industry, research, and the field; and its use as an instructional tool in the academic arena.

STRATEGIES FOR ADVANCED MATERIALS ANALYSIS WITH LAB & SR X-RAY SPECTROSCOPY

Organizer and Instructors:

S. Hayakawa, *Hiroshima University, Hiroshima, Japan, hayakawa@hiroshima-u.ac.jp*

J. Kawai, *Kyoto University, Kyoto, Japan*

I. Nakai, *Tokyo University of Science, Tokyo, Japan*

Y. Muramatsu, *University of Hyogo, Hyogo, Japan*

XRF has made great advances in trace sensitivity and in spatial resolution with the use of synchrotron light sources. Moreover, characterization of trace elements in advanced materials has been realized by using X-ray absorption spectroscopy with the XRF yields method. To realize similar performance with the conventional X-ray sources, many state-

WORKSHOPS MONDAY & TUESDAY, 27 & 28 JULY

of-the-art instruments have been invented. In this workshop, a review will be made on the present status of trace and micro analysis with the laboratory and the synchrotron light sources, and a strategy of choice will be indicated according to the samples to be analyzed.

QUANTITATIVE ANALYSIS—FULL DAY

Organizer and Instructors:

M. Mantler, Vienna University of Technology, Vienna, Austria, michael.mantler@tfd.tuwien.ac.at

B. Vrebos, PANalytical B.V., Almelo, The Netherlands

W.T. Elam, University of Washington, Seattle, WA

PART 1 (Morning):

1. Theoretical and mathematical foundation: Classical fundamental parameter models.
2. Practical application: Working curves and influence coefficients, compensation methods.

PART 2 (Afternoon):

1. How accurate is XRF? (e.g., standardless methods, light elements and low-energy lines, trace-analysis).
2. Obtaining net-intensities: Detector (spectrometer) response function; separation of overlapping peaks/deconvolution; background subtraction; artifacts in spectra.

BASIC XRF

Organizer and Instructors:

W.T. Elam, Ametek/EDAX Research Group and University of Washington APL, Seattle, WA, wtelam@apl.washington.edu

G. Havrilla, Los Alamos National Laboratory, Los Alamos, NM

This workshop provides a basic introduction to the principles of XRF, and is specifically aimed at those new to the field. It will start with a general overview of the technique, followed by more specific details of the basic principles. The emphasis will be on understanding how to use XRF and what its capabilities are. In the second half of the workshop, a few selected applications will be presented. The focus of this segment will be to provide an understanding of how the basic principles effect actual practice.

SPECIMEN PREPARATION—FULL DAY

Organizer and Instructors:

J.A. Anzelmo, Anzelmo & Associates, Inc., Madison, WI, jaanzelmo@aol.com

P. Daigle, Corporation Scientifique Claisse, Sainte-Foy, Quebec, Canada

L. Jacobs, Wyoming Analytical Laboratories, Golden, CO

L. Arias, Bruker AXS, Madison, WI

This workshop will begin in the morning with a review of liquid analysis techniques and equipment (Arias). A discussion of sample preparation physics, and basic operations and equipment for powder preparation and fusion will follow (Anzelmo). The afternoon session begins with a discussion of the preparation of coal, fly-ash, and other service laboratory applications (Jacobs). This will be followed by a discussion of the fusion of difficult samples, including peroxide fusions (Daigle).

TRACE ANALYSIS

Organizer:

M.A. Zaitz, IBM, Hopewell Junction, NY, zaitz@us.ibm.com

Description to be announced.

SESSIONS WEDNESDAY, THURSDAY & FRIDAY 29–31 JULY

The exact date and time of each session will not be determined until April 2009.
The conference ends at 12 noon on Friday, 31 July.

Plenary Session

GETTING THE LEAD OUT—AGAIN!

Chairs: R. Van Grieken, University of Antwerp, Antwerp, Belgium

G.J. Havrilla, Los Alamos National Laboratory, Los Alamos, NM

W.T. Elam, Ametek/EDAX Research Group and Univ. of Washington APL, Seattle, WA

Lead in FDA Regulated Products

R.M. Jacobs, San Francisco District Laboratory, U.S. Food & Drug Administration, Alameda, CA

System Overload!!!—Restoring Order with XRF

M. Fry, Intertek Ageus Solutions, Ontario, Canada

The Truths and Myths of Toys Testing for Lead—XRF to the Rescue

S. Piorek, NITON Analyzers, Thermo Fisher Scientific, Billerica, MA

XRD & XRF

NEW DEVELOPMENTS IN XRD & XRF INSTRUMENTATION

Chair: V.E. Buhrke, Consultant, Portola Valley, CA, vebuhrke@sbcglobal.net

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

Chairs: H. Göbel, Siemens AG, Corp. Tech. and LabXA, Munich, Germany, herb.goebel@gmx.de

F. de Carlo, APS—Argonne National Laboratory, Argonne, IL, decarlo@aps.anl.gov

X-ray Imaging and Microscopy at Modern Synchrotrons

Q. Shen, Brookhaven National Laboratory, Upton, NY

Title to be announced.

M. Schuster, Siemens AG, Corp. Tech., Munich, Germany

Latest Developments in Micro and Nano Tomography at Petra

A. Haibel, GKSS Outstation at DESY, Hamburg, Germany

HIGH ENERGY X-RAY OPTICS FOR SYNCHROTRON RADIATION (50–150 KEV)

Chair: S.D. Shastri, APS—Argonne National Laboratory, Argonne, IL, shastri@aps.anl.gov

Challenges in Sagittal Focusing of High-Energy X-rays by Sagittally Bent Laue Crystals

Z. Zhong, NSLS, Brookhaven National Laboratory, Upton, NY

Refractive X-ray Lenses for High-Energy Applications

B. Lengeler, II, Physikalisches Institut, RWTH Aachen, Germany

High-Energy X-ray Optics at the APS

S.D. Shastri, APS, Argonne National Laboratory, Argonne, IL

BIOENABLED MATERIALS

Chairs: R.L. Snyder, Georgia Institute of Technology, Atlanta, GA, bob.snyder@mse.gatech.edu

V. Petkov, Central Michigan University, Mt. Pleasant, MI, petkov@phy.cmich.edu

Genetically Engineered Materials

R.L. Snyder, Georgia Institute of Technology, Atlanta, GA

Nature-made Nanocrystals: PDF Study on Bacterial and Fungal MnO

V. Petkov, Central Michigan University, Mt. Pleasant, MI

Nanostructuring of Biomaterials—A Pathway to Optimizing Bone Grafting

T. Gerber, Rostock University, Rostock, Germany

Biomaterial Ultrastructures Revealed by Synchrotron Spectromicroscopy

P. Gilbert, University of Wisconsin, Madison, WI

Lattice Distortions, Strain and Stress in Biologically Formed Crystals

B. Pokroy, Harvard University, Cambridge, MA

Nanotechnology and Structure of Edible Fats

A. Marangoni, University of Guelph, Ontario, Canada

SESSIONS

XRD

STRESS ANALYSIS—FULL DAY

Chair: C. Goldsmith, IBM, Hopewell Junction, NY, cgoldsmi@us.ibm.com

Co-chair: T. Watkins, Oak Ridge National Laboratory, Oak Ridge, TN

High Performance XRPD with a New Low Power Cr-Micro Focus Source

H. Göbel, Siemens AG, Corp. Tech. and LabXA, Munich, Germany

Nanoscale Strain Characterization in Microelectronic Materials Using X-ray Diffraction

C. Murray, IBM T.J. Watson Research Center, Yorktown Heights, NY

RIETVELD ANALYSIS—FULL DAY

Chairs: S.T. Mixture, NYS College of Ceramics at Alfred University, Alfred, NY, mixture@alfred.edu

R.L. Snyder, Georgia Institute of Technology, Atlanta, GA, bob.snyder@mse.gatech.edu

Title to be announced.

C.J. Rawn, Oak Ridge National Laboratory, Oak Ridge, TN

MATERIALS DEFORMATION STUDIES USING HIGH-ENERGY X-RAY DIFFRACTION—FULL DAY

Chairs: J. Almer, APS—Argonne National Laboratory, Argonne, IL, Almer@aps.anl.gov

D. Haeffner, APS—Argonne National Laboratory, Argonne, IL, haeffner@aps.anl.gov

Deformation Mechanisms in Amorphous and Nanocrystalline Metals Measured by In situ X-ray Diffraction

R.T. Ott, Ames Laboratory, Ames, IA

Title to be announced.

D. Brown, Los Alamos National Laboratory, Los Alamos, NM

Single Grain Deformation Experiments at the APS 1-ID Beamline

U. Lienert, APS—Argonne National Laboratory, Lemont, IL

LINE PROFILE ANALYSIS

Chair: D. Balzar, University of Denver, Denver, CO, balzar@du.edu

Analysis of Hierarchical Dislocation Arrangements at Different Length Scales

R. Barabash, Oak Ridge National Laboratory, Oak Ridge, TN

HIGH RESOLUTION XRD

Chair: B. Tanner, University of Durham, Durham, United Kingdom, b.k.tanner@dur.ac.uk

Laboratory-based Characterization of Heteroepitaxial Structures: Advanced Experiments not needing Synchrotron Radiation

P. Zaumseil, IHP, Frankfurt, Germany

Six Ways of Determining Film Thickness from High Resolution XRD Data

I.C. Noyan, Columbia University, New York, NY

HIGH THROUGHPUT XRD

Chair: I. Takeuchi, University of Maryland, College Park, MD, takeuchi@umd.edu

Co-chair: Y.S. Chu, APS—Argonne National Laboratory, Argonne, IL

High-throughput XRD and Analysis for Rapid Determination of Phase Distribution Across Combinatorial Libraries

I. Takeuchi, University of Maryland, College Park, MD

Structural Investigation of Ge-Co-Mn Epitaxial Thin-Film System Using X-ray Micro Probe

Y.S. Chu, APS—Argonne National Laboratory, Lemont, IL

Time-Resolved Structural Studies: Strategies for Rapidly Imaging and Analyzing Large Data Sets

M.J. Kramer, Iowa State University, Ames, IA

SESSIONS

XRF

ENVIRONMENTAL APPLICATIONS

Chair: R. Van Grieken, University of Antwerp, Antwerp, Belgium, rene.vangrieken@ua.ac.be

Distribution, Characteristics and Implications of Toxic Elements found in Environmental Investigations based on Analytical Techniques

L. Luo, National Research Center of Geoanalysis, Beijing, P.R. China

Title to be announced.

S. Török, KFKI Institute of Atomic Energy, Budapest, Hungary

Simultaneous X-ray and Ion Beam Techniques for the Characterisation and Fingerprinting of Fine Particle Air Pollution and its Sources in the Asian Region

D. Cohen, Australian Nuclear Science and Technology Organization, Menai, Australia

FUSION AND INDUSTRIAL APPLICATIONS OF XRF

Chair: J.A. Anzelmo, Anzelmo & Associates, Inc., Madison, WI, jaanzelmo@aol.com

Applications of XRF in the Glass Industry

L. Schurter, Owens Corning Science and Technology Center, Granville, OH

TRACE ANALYSIS

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

Invited talks to be announced.

QUANTITATIVE ANALYSIS

Chair: W.T. Elam, Ametek/EDAX Research Group and Univ. of Washington APL, Seattle, WA, wtelam@apl.washington.edu

Title to be announced.

P. Van Espen, University of Antwerp, Antwerp, Belgium

Contributed Abstracts

Abstracts are hereby solicited for oral presentation in any of the special sessions listed, or the XRD and XRF poster sessions. Not all contributed abstracts submitted for oral presentation will be placed in a special session, but rather, will default to poster presentation. Poster sessions will be held on Monday and Tuesday evening of conference week, in conjunction with the evening receptions. Abstracts of more general interest will be placed in oral sessions. The Organizing Committee considers the withdrawal of an abstract after it has been accepted and advertised as highly nonprofessional (except in special circumstances). Please try to secure travel funding and approvals before submitting your abstract.

GUIDELINES FOR PREPARING ABSTRACTS

Abstracts are reproduced as submitted in the *Book of Abstracts*, and will also be published on the Denver X-ray Conference web site, with links to, or duplicate copies on other affiliated web sites (e.g., ICDD). If you do not want your abstract so published, please note your request on the information page of your abstract submission. Abstracts must not exceed one page in length and must include the title, author(s), affiliation(s) and the text. To provide uniformity, abstracts must be prepared according to the following guidelines:

Abstract Format

- ▼ Paper Size: 8.5 x 11 inches; A4 paper must be formatted for 8.5 x 11 inches.
- ▼ Size: Entire abstract, including title, author(s), affiliation(s), and text, must fit into a maximum area of 15 cm (5.9") wide by 20 cm (7.9") high.
- ▼ Font: Times or Times New Roman, 12 point.
- ▼ Title: Bold, centered
- ▼ Author(s) and affiliation(s): centered; if there is more than one author, underline the presenting author's name.
- ▼ Leave two blank lines before beginning the text.

GUIDELINES CONTINUED

▼ Text:

- ▲ Text should appear flush left; do not indent.
- ▲ Use line spacing sufficiently large enough to allow the abstract to be read easily, including subscripts, superscripts and Greek letters.
- ▲ A blank line is recommended (space permitting) between paragraphs.

Information File

In addition to the abstract, please submit a separate file with the following information:

- ▼ Contact name, mailing address, phone number, fax number, and e-mail address.
- ▼ Permission to post abstract on the DXC web site and affiliated web sites.
- ▼ Indicate your preference (oral presentation or poster):
 - ▲ If oral presentation is preferred, suggest session where paper may be best suited
 - ▲ If poster presentation is preferred, choose either XRD or XRF
- ▼ If your submission is invited, please indicate that your paper is invited and include the chairperson's name that issued your invitation along with the session title.
- ▼ Indicate whether you intend to publish this paper in the DXC proceedings. If you do not plan on publishing, please explain why.

Abstract Submission

Abstracts may be submitted on-line or by e-mail:

1. On-line: Please visit the DXC web site:
www.dxcicdd.com for complete instructions for on-line submission.
2. E-mail: Send to dxc@icdd.com as an attached file created in:
 - a) Microsoft® Word (Word 97–Word 2007)(preferred format)
 - b) Adobe® PDF

Please note:

- ▼ Special characters, tables, mathematical formulae and figures should be kept to a minimum.
- ▼ If special symbols or Greek letters are used, please limit the fonts to those that are available with the standard distribution of Microsoft® Word. Nonstandard fonts may lead to errors in transmission.
- ▼ All graphics must be embedded in the Word document.

Receipt of abstracts will be confirmed via e-mail. If you do not receive your confirmation within two weeks of your submission, please contact:

Denise Flaherty, Conference Coordinator
flaherty@icdd.com
Phone: 610.325.9814

CONFERENCE INFORMATION

Hotel Information

The 2009 Denver X-ray Conference will be held at the:

CROWNE PLAZA HOTEL
2886 South Circle Drive
Colorado Springs, CO 80906 U.S.A.
Phone: 1.719.576.5900 Fax: 1.719.576.7695
Web site: www.cpcoloradosprings.com

The hotel will offer complimentary transportation to and from downtown Colorado Springs for conference attendees and their families.

Reservations (Rates applicable until 6 July 2009, subject to availability)

Attendees are responsible for making their own reservations. Please call 800.981.4012 and identify yourself as a Denver X-ray Conference attendee when booking your reservation. The web site for on-line reservations is:

https://resweb.passkey.com/Resweb.do?mode=welcome_ei_new&eventID=80423. There is a direct link to this site on our homepage: www.dxcicdd.com.

CONFERENCE INFORMATION CONTINUED

The special conference rate of \$122.00 per night (plus tax) has been contracted for our group. Don't wait to book your reservation—there are a limited number of rooms available at the special conference rate! Rates applicable until 6 July 2009 (subject to availability). All reservations must be guaranteed and accompanied by a first night room deposit, or guaranteed with a major credit card.

Student Rooms

There are a limited number of hotel rooms being offered to students at a discounted rate of \$70 per night plus tax. Student rooms are shared—each room will be equipped with two double beds to accommodate two persons. Please visit the Denver X-ray Conference web site: www.dxcicdd.com for a Student Room Authorization form. Student identification will be required. Rooms will be booked on a first-come, first-serve basis.

Visa Application Notice

Obtaining a Visa is the sole responsibility of the attendee. The Denver X-ray Conference is not permitted to mediate with either the U.S. Embassy abroad or with the State Department on behalf of any conference attendee. However, if you need an invitation letter to the conference to submit with your application, please e-mail your request to: flaherty@icdd.com. Please include your name, passport #, birthdate, mailing address, e-mail, and the title(s) of any abstract(s) that you have submitted for the conference. A copy of the letter will be e-mailed and airtailed to you.

Exhibits

Vendors – don't miss this opportunity to display your company's products and services to this elite crowd of scientists. The cost for an 8' deep x 10' wide booth will be \$1,950.00 and will include a vendor sponsored wine & cheese reception on Wednesday evening of conference week. Applications for exhibit space will be available on 2 February 2009. Contact Denise Flaherty: flaherty@icdd.com, 610.325.9814, to add your name to the mailing list.

Sponsorship Opportunities

There are various sponsorships available to exhibitors of the Denver X-ray Conference. This information will be released on 2 February along with the application for exhibit space. Please visit our web site: www.dxcicdd.com for details.

Have an idea for a workshop or session?

Visit: <http://www.dxcicdd.com/workshopsuggestions.htm>

Jerome B. Cohen Student Award

This award was instituted in the name of Professor Jerome B. Cohen, one of the leaders in the field of X-ray analysis, and in the training of students in this art. The award is intended to recognize the outstanding achievements of student research in this field. All students, graduate or undergraduate, who are working in the field of X-ray analysis, can submit a technical paper describing their work. The following criteria applies:

- The research must be original, of high quality, and must be primarily the work of the student.
- All papers submitted for the Cohen Award must be presented at the conference in either oral or poster session. Thus, all first-author students must submit an abstract and also attend the conference.
- The papers submitted for this competition must be received in final publication form electronically by 1 July 2009. The winning manuscript will also be listed in the conference proceedings.

The winner will be selected by a committee of researchers in the field, and notified one week before the conference. The winner must be able to attend the Plenary session of the conference on Wednesday morning for the announcement of the award. The award for the year 2009 will be in the amount of \$1,000. Students interested in participating in this year's competition must submit their papers and a certification form to dxcc@icdd.com by 1 July 2009. The certification form and instructions for preparing a manuscript can be obtained on the Denver X-ray Conference web site: <http://www.dxcicdd.com>.

CONFERENCE INFORMATION

Conference Proceedings—DXC

Don't miss this opportunity to showcase your research by submitting your presented paper for the DXC conference proceedings, *Advances in X-ray Analysis*, Volume 53 on CD-ROM. Work presented during either an oral session or poster session is eligible for submission. Select papers will also be published in the journal, *Powder Diffraction*.

In the interest of releasing the conference proceedings as early as possible, we are encouraging authors to submit their manuscripts for publication during the conference, at the conference registration desk. If you are unable to bring your manuscript with you at that time, it can be accepted until 1 September 2009. Preparation guidelines for DXC manuscripts will be e-mailed to authors after the abstract deadline, and are also available at: <http://www.dxcicdd.com/advances/authors.htm>. Note: To be acceptable for publication, papers should describe either new methods, theory and applications, improvements in methods or instrumentation, or other advances in the state of the art. Papers emphasizing commercial aspects are discouraged. Information for preparing manuscripts will be mailed after abstracts have been received. *Advances in X-ray Analysis* is distributed throughout the world, and the complete manuscripts of volumes 40–48 (1996–2004) can also be viewed on the ICDD web site: <http://www.dxcicdd.com/advances/advances.htm>.

2009 DENVER X-RAY CONFERENCE ORGANIZING COMMITTEE

Robert L. Snyder, *Chair*
Georgia Institute of Technology, Atlanta, GA

W. Tim Elam, *Co-Chair*
EDAX, Inc., Mahwah, NJ and University of Washington, Redmond, WA

John A. Anzelmo
Anzelmo & Associates, Inc., Madison, WI

Thomas Blanton
Eastman Kodak Company Research Labs, Rochester, NY

Victor E. Buhrke, *Past Chair*
Consultant, Portola Valley, CA

Denise Flaherty
International Centre for Diffraction Data, Newtown Square, PA

George J. Havrilla
Los Alamos National Laboratory, Los Alamos, NM

Ting C. Huang
Emeritus, IBM Almaden Research Center, San Jose, CA

James A. Kaduk
INEOS Technologies, Naperville, IL

Terry Maguire
International Centre for Diffraction Data, Newtown Square, PA

Scott T. Misture
NYS College of Ceramics at Alfred University, Alfred, NY

I. Cev Noyan
Columbia University, New York, NY

Brian Toby
APS—Argonne National Laboratory, Argonne, IL

René Van Grieken
University of Antwerp, Antwerp, Belgium

Mary Ann Zaitz
IBM, Hopewell Junction, NY

2009 Denver X-ray Conference Registration Form

Crowne Plaza, Colorado Springs, Colorado U.S.A.

27-31 July 2009

PLEASE TYPE to avoid errors on name tags and attendee list. On-line registration is also available at: www.dxcicdd.com

First Name _____

Last Name _____

Organization _____

Address _____

City _____ State _____ Zip _____

Country _____ Phone _____

E-mail _____

Check this box if you DO NOT want your name included on the attendee list.

Registration Fees: Discount fees will only apply if registration form and payment are received by 1 July 2009.

	<u>by July 1</u>	<u>after July 1</u>
<input type="checkbox"/> Full week: exhibits, workshops, sessions [†]	\$500	\$575
<input type="checkbox"/> Monday & Tuesday: exhibits, workshops [†]	\$450	\$525
<input type="checkbox"/> Wed., Thurs. & Friday: exhibits, sessions [†]	\$450	\$525
<input type="checkbox"/> Session organizer, invited speaker & workshop instructor [†]	\$100	\$100
<input type="checkbox"/> Student (I.D. required)	\$125	\$200
<input type="checkbox"/> Unemployed	\$125	\$200
<input type="checkbox"/> 65 and older	\$125	\$200

[†]Includes a copy of Volume 53 of *Advances in X-ray Analysis* on CD-ROM.

Payment:

Total Amount Due: _____

Check enclosed for _____ made payable to **ICDD/DXC**

Charge my: Visa Mastercard American Express

Card number _____ Expiration date _____

Card holder's name (please print) _____

Signature _____

Please take the time to answer the following questions:

1) Are you primarily interested in XRD or XRF topics?

XRD XRF Equally interested in both

2) What is your highest education level?

HS BS MS Ph.D

3) Job Title _____

To Submit Registration Form:

Mail: ICDD, Denise Flaherty, 12 Campus Boulevard, Newtown Square, PA 19073-3273 U.S.A.

Fax: 610.325.9823

E-mail: flaherty@icdd.com

Cancellation Policy: Cancellations must be submitted in writing to Denise Flaherty. A full refund will be issued, less a \$50 processing fee, if the cancellation is received at least two weeks before the conference (Monday, 13 July 2009). No refunds will be issued for cancellations received after 13 July 2009.

Please contact Denise Flaherty for any additional information, e-mail flaherty@icdd.com or phone 610.325.9814.

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DATES TO REMEMBER

Exhibit packets mailed

2 February 2009

Deadline for submission of abstracts

1 March 2009

Conference programs mailed

May 2009

Deadline to register at the Crowne Plaza

6 July 2009

(Conference rate, subject to availability)

Deadline for submission of manuscripts:

at the Conference or no later than

1 September 2009

