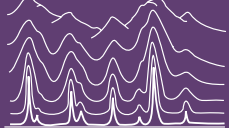


DENVER X-RAY CONFERENCE™



The 51<sup>st</sup> Annual  
Denver X-ray Conference

# Call for Papers

*Plenary Session*

## Applications of X-ray Analysis to Forensic Materials

29 July-2 August 2002  
Antlers Adam's Mark Hotel  
Colorado Springs, Colorado, U.S.A.

Sponsored by  
**International Centre for Diffraction Data**



HO



# 51<sup>st</sup> Annual Denver X-ray Conference

## Plenary Session

### Applications of X-ray Analysis to Forensic Materials

Organized by:

**D.F. Rendle**, The Forensic Science Service, Metropolitan Laboratory, London, United Kingdom

**R. Jenkins**, Emeritus, International Centre for Diffraction Data, Newtown Square, PA

#### *"X-ray Analysis in the U.S. Customs Laboratories"*

M.H. Liberman, U.S. Customs Laboratory,  
San Francisco, CA

#### *"Underkarat Jewelry: The Perfect Crime? Investigations and Analysis of Jewelry Using XRF"*

D. Kloos, Industry Consultant, Westminster, CA

#### *"X-ray Diffraction Analysis in the Forensic Science Laboratory of Stuttgart, Germany—The Last Resort in Many Criminal Cases"*

W. Kugler, Landeskriminalamt Baden,  
Wurttemberg, Kriminaltechnisches Institut,  
Stuttgart, Germany

#### *"Portable XRF for Forensic Investigations"*

D.C. Ward, Federal Bureau of Investigation,  
Microanalysis Laboratory, Washington, DC

#### *"Use of X-rays in the United Kingdom Forensic Science Service"*

D.F. Rendle, The Forensic Science Service, Met-  
ropolitan Laboratory, London, United Kingdom

#### *"XRD at the FBI"*

M.C. Bottrell, Federal Bureau of Investigation,  
Geologist/Forensic Examiner, Washington, DC

## Special Sessions—XRD & XRF

### New Developments in XRD & XRF Instrumentation (commercial)

Organized by:

V.E. Buhrke, Consultant, Portola Valley, CA,  
650.851.5020, vebuhrke@cs.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.

## Synchrotron Applications

Organized by:

C. Lavoie, IBM, Yorktown Heights, NY, 914.945.2180,  
Clavoie@us.ibm.com

Co-chair:

K. Ludwig, Boston University, Boston, MA

#### *"Real-Time Synchrotron Studies of Phase Transformations"*

K. Ludwig, Boston University, Boston, MA

#### *"Synchrotron In Situ Studies of Chemical Vapor Deposition"*

G.B. Stephenson, Argonne National Laboratory,  
Argonne, IL

## X-ray Optics

Organized by:

N. Gao, X-ray Optical Systems, Inc., Albany, NY,  
518.464.3334, ngao@xos.com

Co-chair:

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

***"X-ray Diffraction Thin Film Analysis Using Polycapillary Collimating Optics"***

Q. Xiao, IBM Corporation, San Jose, CA

***"Dual Polycapillary Micro X-ray Fluorescence Instrument"***

G.J. Havrilla, Los Alamos National Laboratory,  
Los Alamos, NM; N. Gao, X-ray Optical Systems, Inc.,  
Albany, NY

**Microbeam Analysis (Combinatorial & Robotic Applications)**

Organized by:

G.J. Havrilla, Los Alamos National Laboratory,  
Los Alamos, NM, 505.667.9627,  
havrilla@lanl.gov

***"1, 2 and 3D Micro-analysis Using SR-based Spectroscopy and Imaging"***

A.S. Simionovici, European Synchrotron Research  
Facility, Grenoble, France

***"Quantitative Aspects of X-ray Microbeam Analysis"***

K. Janssens, University of Antwerp (UIA),  
Antwerp, Belgium

***"Scanning X-ray Microtopography Study of Electromigration in Integrated Circuits"***

P.-C. Wang, IBM Microelectronics,  
Hopewell Junction, NY

**Thin Films**

Organized by:

T.C. Huang, Emeritus, IBM Almaden Research Center,  
San Jose, CA, 408.578.4060,  
huang@icdd.com

***"X-ray Diffraction Evidence of Anisotropic Epitaxial Stacking of Cu-phthalocyanine Molecules on a Specially Treated Si Substrate"***

K. Inaba, K. Omote, J. Harada, Rigaku Corporation,  
Tokyo, Japan; M. Ofuji, H. Hoshi, Y. Takanishi, K.  
Ishikawa, H. Takezoe, Tokyo Institute of Technology,  
Tokyo, Japan

**Special Sessions—XRD**

**Rietveld Applications (Full day)**

Organized by:

J.A. Kaduk, BP Amoco, Naperville, IL, 630.420.4547,  
kadukja@bp.com

***"Structure Determination From Powder Diffraction Data: Relations Between Structures and Physical Properties"***

Q. Huang, National Institute of Standards &  
Technology, Gaithersburg, MD

***"Crystal Structures of Organic/Pharmaceutical Compounds"***

P.W. Stephens, SUNY Stony Brook, Stony Brook, NY

***"Rietveld Quantitative X-ray Diffraction on Complex Mixtures—What Can We Do?"***

R.S. Winburn, Minot State University, Minot, ND

***"Strain, Crystallite Size, and Phase Composition in Nanocrystalline Solids"***

X. Bokhimi, Mexican Institute of Petroleum, Mexico  
City, Mexico

**Industrial Applications of XRD (Full day)**

Organized by:

R.L. Snyder, The Ohio State University, Columbus, OH,  
614.292.6255, snyder.355@osu.edu

C.R. Hubbard, Oak Ridge National Laboratories,  
Oak Ridge, TN, 865.574.4472,  
hubbardcr@ornl.gov

*Invited talks to be announced*

**Stress Analysis**

Organized by:

C.C. Goldsmith, IBM Microelectronics,  
Hopewell Junction, NY, 914.894.3683,  
cgoldsmi@us.ibm.com

*Title of invited talk to be announced*

T. Watkins, Oak Ridge National Laboratory,  
Oak Ridge, TN

**Neutron Diffraction**

Organized by:

E. Üstündag, California Institute of Technology,  
Pasadena, CA, 626.395.2329,  
ersan@caltech.edu

M.A.M. Bourke, Los Alamos National Laboratory,  
Los Alamos, NM, 505.665.1386,  
bourke@lanl.gov

***"Diffraction Measurements During Mechanical Loading in Superelastic and Shape-Memory Alloys"***

R. Vaidyanathan, University of Central Florida,  
Orlando, FL

***"ENGIN-X: Optimizing a Neutron Stress Diffractometer"***

M.R. Daymond, Rutherford Appleton Laboratory,  
Oxon, United Kingdom

## Special Sessions—XRF

### Quantitative XRF

Organized by:

J. Gilfrich, Emeritus, SFA, Inc./NRL, Washington, DC,  
301.365.5070, jgilfrich@juno.com

*"Accuracy of Theoretical Influence Coefficient Methods"*

M. Mantler, Vienna University of Technology,  
Vienna, Austria

*"Quantitative Approaches in Micro X-ray Fluorescence"*

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

### TXRF

Organized by:

M.A. Zaitz, IBM Microelectronics, Hopewell Junction,  
NY, 914.894.6337, zaitz@us.ibm.com

*Invited talks to be announced*

### Problem Solving/Industrial Applications of XRF

Organized by:

D. Broton, Construction Technology Labs, Skokie, IL,  
847.965.7500, dbroton@CTLgroup.com

*"Cement Content of Hardened Portland Cement  
Concrete Using XRF, A Novel Approach"*

D. Broton, Construction Technology Labs, Skokie, IL

*"The Use of XRF in Solving Problems Related to the  
Production of Active Pharmaceutical Ingredients (API)"*

F.J. Antosz, J.W. Manski, Pharmacia, Kalamazoo, MI

### Polarized X-ray Optics

Organized by:

B. Chappell, Macquarie University, Sydney, Australia,  
xrfs@ozemail.com.au

Co-chair: R.W. Ryon, Emeritus, Lawrence Livermore  
National Laboratories,  
Livermore, CA

*"Polarized Beam XRF Analysis—Past and Future"*

J. Heckel, Spectro Analytical Instruments,  
Kleve, Germany

*"Polarized Beam XRF Analysis of Geologic Materials"*

B. Chappell, Macquarie University, Sydney, Australia

*"Polarization for Background Reduction in EDXRF—The  
Technique That Would Not Work"*

R.W. Ryon, Emeritus, Lawrence Livermore National  
Laboratories, Livermore, CA

## Workshops—XRD & XRF

### Optics

Organized by:

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

Z. Al-Mosheky, Osmic, Inc., Troy, MI, Zaid@osmic.com

### Thin Films

Organized by:

M.W. Dirken, Philips Analytical, Almelo,  
The Netherlands,  
mark.dirken@philips.com

## Workshops—XRD

### Rietveld Applications (Full day)

Organized by:

J.A. Kaduk, BP Amoco, Naperville, IL, kadukja@bp.com

### Advances in Database Technology

Organized by:

J. Faber, International Centre for Diffraction Data,  
Newtown Square, PA, faber@icdd.com

### Line Broadening

Organized by:

J. Makinson, Rail Sciences, Inc., Omaha, NE,  
john@railsciences.com

### Methods of Phase Identification

Organized by:

R. Jenkins, Emeritus, International Centre for  
Diffraction Data, Newtown Square, PA,  
jenkins@icdd.com

### Texture Analysis (Full day)

Organized by:

H. Schaeben, Freiberg University of Mining and  
Technology, Freiberg, Germany,  
schaeben@geo.tu-freiberg.de

## Workshops—XRF

### Quantitative XRF (Full day)

Organized by:

J. Anzelmo, Bruker AXS, Inc., Madison, WI,  
janzelmo@bruker-axs.com

M. Mantler, Vienna University of Technology  
Vienna, Austria,  
mmantler@xrm.atp.tuwien.ac.at

### Fundamentals of XRF

Organized by:

J. Gilfrich, Emeritus, SFA, Inc./NRL, Washington, DC,  
jgilfrich@juno.com

J. Croke, Emeritus, Philips Analytical, Inc., Natick, MA,  
johncroke@aol.com

### TXRF

Organized by:

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

### Polarized X-ray Optics

Organized by:

B. Chappell, Macquarie University, Sydney, Australia,  
xrfs@ozemail.com.au

### Specimen Preparation (Full day)

Organized by:

D. Broton, Construction Technology Labs, Skokie, IL,  
dbroton@CTLgroup.com

### *Approximate Conference Preregistration Fees\**

Full week: exhibits, workshops, sessions <sup>†</sup>	\$325
Monday & Tuesday: exhibits, workshops <sup>†</sup>	\$275
Wednesday, Thursday & Friday: exhibits, sessions <sup>†</sup>	\$275
Session organizers, invited speakers & workshop instructors <sup>†</sup>	\$100
Students, unemployed X-ray people, and persons 65 and older: exhibits, workshops, sessions	\$ 75

*\*Preregistration fees will only be valid until 5 July 2002. Registration fees will increase after 5 July 2002.*

*<sup>†</sup>Includes a copy of Volume 46 of *Advances in X-ray Analysis* on CD-ROM.*

### *Jerome B. Cohen Student Award*

This award, instituted in the memory 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, is intended to recognize the outstanding achievements of student research in this field. All students, graduate or undergraduate, who are working in any aspect of X-ray analysis, can submit their work. The research must be original, of high quality and must be primarily the work of the student.

The papers submitted for this competition must be received in electronic form by 1 July 2002 in final publication form. The winner will be selected by a committee of researchers in the field, announced at the Plenary Session of the conference and listed in the proceedings. The award for the year 2002 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](mailto:dxcc@icdd.com) by the due date. The certification form can be obtained on the Denver X-ray Conference web site: <http://www.dxcicdd.com>.

# 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 and/or IXAS). 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, it is recommended that abstracts 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. Please allow a top margin of 3.8 cm (1.5") to allow insertion of session codes/information by conference staff
- ▼ **Font:** Times or Times New Roman, 12 point
- ▼ **Title:** bold, centered, all uppercase (except where lowercase letters are needed for clarity)
- ▼ Leave one blank line between the title and the author(s)
- ▼ **Author(s) and affiliation(s):** mixed upper and lowercase, centered; if there is more than one author, underline the presenting author's name
- ▼ Leave two blank lines before beginning the text
- ▼ **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 Page

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

- ▼ Permission to post abstract on the DXC web site and affiliated web sites
- ▼ Speaker's name, mailing address, phone number, fax number, and e-mail address
- ▼ If the speaker is not the person to whom correspondence should be sent, please include contact person's name, mailing address, phone number, fax number, and e-mail address

- ▼ Indicate your preferences:
  - ▲ oral presentation or poster
  - ▲ if oral presentation is preferred, suggested session where paper may be best suited
  - ▲ if poster presentation is preferred, choose the XRD or XRF evening poster session
- ▼ 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 *Advances in X-ray Analysis*, Volume 46

## Abstract Submission

Abstracts may be submitted by regular mail or e-mail:

1. **Mail:** Send an original and one photocopy, without folds, to:  
Denise Flaherty,  
ICDD  
12 Campus Boulevard  
Newtown Square, PA 19073-3273 USA
2. **E-mail:** Send as an attached file, created in Adobe® PDF (preferred format), Microsoft Word (6.0 through 2000) or WordPerfect (6.0 through 7) to: [dxcc@icdd.com](mailto:dxcc@icdd.com)

### 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 or WordPerfect. Nonstandard fonts may lead to errors in transmission
- ▼ All graphics must be embedded in the Word or WordPerfect document

**Note:** Because they do not reproduce well, abstracts submitted by facsimile will not be accepted.

**The deadline for receipt of abstracts is  
8 March 2002**

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](mailto:flaherty@icdd.com), phone 610.325.9814.

## Presented Papers

The Organizing Committee considers unprofessional the withdrawal of a paper (except in special circumstances) after it has been accepted and widely advertised. Non-U.S. authors, in particular, please try to secure travel funding and approvals before submitting your abstract(s).

Publication of presented papers: In the interest of releasing the conference proceedings, *Advances in X-ray Analysis*, as early as possible after the conclusion of the conference, 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, please mail it no later than 7 September 2002 to:

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

**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.

## Contributed Papers

Contributed papers are hereby solicited for any of the special sessions previously listed or the XRD and XRF general sessions. Many of the contributed papers will be placed in poster sessions, held in conjunction with mixers during the evenings of conference week. Those of more general interest will be placed in oral sessions.

## For More Information

The *Call for Papers* and the tentative *Conference Program* can be found on the Denver X-ray Conference web page at <http://www.dxcicdd.com>. Please continue to monitor this site for the latest conference information. For additional information, contact:

**Denise Flaherty**  
**ICDD**  
**12 Campus Boulevard**  
**Newtown Square, PA 19073-3273 U.S.A.**  
**Phone: 610.325.9814**  
**Fax: 610.325.9823**  
**E-mail: [dxc@icdd.com](mailto:dxc@icdd.com)**

## Hotel Information

The 2002 Denver X-ray Conference will be held 29 July–2 August at the Antlers Adam's Mark Hotel, 4 South Cascade Avenue, Colorado Springs, CO 80903, U.S.A., phone: 1.800.444.ADAM or dial direct: 1.719.473.5600, fax: 1.719.389.0259.

### Reservations

Attendees are responsible for making their own reservations. Please identify yourself as a Denver X-ray Conference attendee when booking your reservation. Reservations should be made as soon as possible since there is a limited number of rooms available at the conference rate. The special conference rate of \$119 per day (plus 8% tax) for a single or double occupancy will only be applicable before 3 July 2002, subject to availability. Please note the hotel's cancellation policy: Should an individual reservation need to be cancelled for any reason, there will be no charge for that individual reservation cancelled 24 hours or more prior to the scheduled day of arrival. If the individual reservation is not cancelled, a "no-show" fee of one night's room and tax will be charged.

### Overflow Hotel:

The Red Lion Hotel Colorado Springs, 314 West Bijou Street, Colorado Springs, CO 80905, phone: 800.477.8610 or dial direct: 719.471.8680, fax: 719.471.8680, has been selected as the overflow hotel. Please identify yourself as a Denver X-ray Conference attendee when booking your reservation. A group of rooms has been reserved at the special conference rate of \$89 per day (plus 8% tax) for single/double/triple/quad occupancy. The rate will only be applicable before 12 June 2002, subject to availability. Please note the hotel's cancellation policy: Individual rooms must be cancelled within 24 hours of arrival date to avoid any no show charges which will be debited to the individual's credit card. If enough rooms are reserved by conference attendees, a shuttle service will be provided by the Red Lion Hotel to the Antlers Adam's Mark Hotel. The Red Lion is located approximately 0.5 mile (3 blocks) from the Antlers Adam's Mark Hotel.

### Need a Roommate?

If you are unable to pay the full price of a hotel room, consider sharing the expenses with a roommate. Check out the Denver X-ray Conference web site: [www.dxcicdd.com](http://www.dxcicdd.com) for information on locating a roommate.

International Centre for Diffraction Data  
12 Campus Boulevard  
Newtown Square, PA 19073-3273 U.S.A.



NONPROFIT ORG  
U.S. POSTAGE  
PAID  
PERMIT #56  
NEWTOWN SQUARE  
PA 19073

8 March 2002

May 2002

May 2002

3 July 2002

12 June 2002

at the Conference or no later than 7 September 2002

## 2002 Denver X-ray Conference Organizing Committee

Randolph Barton, Jr.,  
Don Broton,  
Victor E. Buhrke,  
John V. Gilfrich,  
George J. Havrilla,  
Ting C. Huang,  
Ron Jenkins,  
James A. Kaduk,  
Terry Maguire,  
I. Cev Noyan,  
Robert L. Snyder,  
Mary Ann Zaitz,