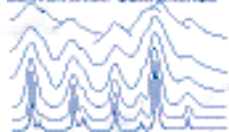


DENVER X-RAY CONFERENCE™



53rd Annual Denver X-ray Conference

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**Plenary Session
RED HOT X-RAYS**

**2-6 August 2004
Sheraton Steamboat Resort
Steamboat Springs, Colorado U.S.A.**



Sponsored by



International Centre for Diffraction Data

Plenary Session

Red Hot X-rays

Organized by: C. PREWITT, Carnegie Institution of Washington, Washington, DC

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

**“Laue Microdiffraction: An Energy-Scan Approach to Single-Crystal Diffraction—
An Old Technique as a Revolutionary Solution for High-Pressure Crystallography”**

P. DERA, Carnegie Institution of Washington, Geophysical Lab, Washington, DC

“Diffraction Studies of Order-Disorder at High Pressures and Temperatures”

J. PARISE, Department of Geosciences, Stony Brook University, Stony Brook, NY

“The Structure of Liquid Al Alloys at High Superheats Using High Energy X-rays”

M. KRAMER, Ames Laboratory, Iowa State University, Ames, IA

“Getting the Hot Structures”

K.F. KELTON, Department of Physics, Washington University, St. Louis, MO

Special Sessions—XRD & XRF

Synchrotron Applications (Full Day)

Organized by:

C. LAVOIE, IBM T.J. Watson Research Center,
Yorktown Heights, NY, 914.945.2180,
clavoie@us.ibm.com

CO-CHAIR: T. VAN BUUREN, Lawrence Livermore
National Laboratory, Livermore, CA

“AXIOTAXY: A NEW TYPE OF TEXTURE IN THIN FILMS”

C. Detavernier, *Universiteit Gent, Gent, Belgium*

**“PROBING THE PHYSICAL AND ELECTRONIC
PROPERTIES OF NANOMATERIALS”**

T. van Buuren, *Lawrence Livermore National
Laboratory, Livermore, CA*

Thin Films

Organized by:

T.C. HUANG, EMERITUS, IBM Almaden Research
Center, San Jose, CA, 408.578.4060,
tinghuang@tinghuang.com

“WDXRF ANALYSIS OF THIN LAYERS”

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

**“GRAZING-INCIDENT X-RAY DIFFRACTION ANALYSES
OF NOVEL MAGNETIC THIN FILMS”**

K. Inaba, Y. Ito, K. Omote, H. Toraya, *Rigaku
Corporation, Tokyo, Japan*

New Developments in XRD & XRF Instrumentation

Organized by:

J.A. ANZELMO, Anzelmo & Associates, Madison, WI,
608.824.0254, jaanzelmo@aol.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.

Microbeam Analysis

Organized by:

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

T. MILLER, X-ray Optical Systems, Inc.,
East Greenbush, NY, 518.880.1500, tmiller@xos.com

**“COMBINATION OF SCANNING PROBE MICROSCOPE
AND X-RAY ANALYSIS”**

K. Tsuji, *Osaka City University, Osaka, Japan*

**“SAMPLING VOLUME EFFECTS FOR MICROBEAM
DIFFRACTION”**

I.C. Noyan, *IBM T.J. Watson Research Center,
Yorktown Heights, NY*

X-ray Optics

Organized by:

S.T. MISTURE, NYS College of Ceramics at Alfred University, Alfred, NY, 607.871.2438, misture@alfred.edu

“POLYCAPILLARY OPTICS IN MICRO X-RAY FLUORESCENCE”

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

“QUANTITATIVE EVALUATION OF GRADED PARABOLIC MULTILAYER OPTICS”

J. Cline, D. Windover, *National Institute of Standards & Technology, Gaithersburg, MD*

Detectors & Sources

Organized by:

T.C. HUANG, Emeritus, IBM Almaden Research Center, San Jose, CA, 408.578.4060, tinghuang@tinghuang.com

“PERFORMANCE OF A NEW ULTRA-FAST AND ULTRA-LOW NOISE X-RAY DETECTOR”

K. Omote, A. Tsukiyama, M. Kurabayashi, T. Saito, *Rigaku Corporation, Tokyo, Japan*

Special Sessions—XRD

Stress Analysis

Organized by:

C.C. GOLDSMITH, IBM Microelectronics, Hopewell Junction, NY, 845.894.3683, cgoldsmi@us.ibm.com

“TRANSIENT STRESS EFFECTS IN THIN FILMS DETERMINED BY X-RAY DIFFRACTION”

C.E. Murray, *IBM Research, Yorktown Heights, NY*

Rietveld Applications

Organizer and speakers to be announced.

Parallel Beam Diffraction

Organized by:

R.L. SNYDER, Georgia Institute of Technology, Atlanta, GA, 404.894.1246, bob.snyder@mse.gatech.edu

S.T. MISTURE, NYS College of Ceramics at Alfred University, Alfred, NY, 607.871.2438, misture@alfred.edu

“PARALLEL BEAM XRD: HIGH ACCURACY DATA FROM POWDERS AND POLYCRYSTALLINE THIN FILMS”

D.K. Bowen, *Bede Scientific, Inc., Englewood, CO*

“ADVANCES IN DOUBLY CURVED CRYSTAL (DCC) OPTICS AND APPLICATIONS”

Z. Chen, *X-ray Optical Systems, Inc., East Greenbush, NY*

Polymers (Full Day)

Organized by:

N.S. MURTHY, University of Vermont, Burlington, VT, 802.656.0308, sanjeeva.murthy@uvm.edu

K.H. GARDNER, DuPont Company, Wilmington, DE, 302.695.2408, kenn.h.gardner@usa.dupont.com

“STRUCTURE OF POLYMERS USING NEUTRON AND X-RAY FIBER DIFFRACTION”

T. Forsyth, *Institut Laue Langevin, Grenoble, France and Keele University, Staffordshire, United Kingdom*

“STRUCTURE DETERMINATION OF POLYMER FIBER USING DIRECT METHOD TECHNIQUES”

K.H. Gardner, *DuPont Company, Wilmington, DE*

“SIMULTANEOUS SAXS/WAXD STUDY OF IN-SITU POLYMER PROCESSING”

B. Hsiao, *State University of New York, Stony Brook, NY*

“X-RAY SCATTERING AND DSC STUDIES OF PRE-MELTING EXOTHERMIC TRANSITIONS IN NYLON 6”

S.T. Correale, *Honeywell International, Colonial Heights, VA,*

N.S. Murthy, *University of Vermont, Burlington, VT*

Small Angle Scattering

Organized by:

N.S. MURTHY, University of Vermont, Burlington, VT, 802.656.0308, sanjeeva.murthy@uvm.edu

J.D. LONDONO, DuPont Company, Wilmington, DE, 302.695.1222, j-david.londono@usa.dupont.com

“IN-SITU STUDIES OF PARTICLE GROWTH DYNAMICS IN A FLAME REACTOR”

G. Beaucage, *University of Cincinnati, Cincinnati, OH*

“IN-SITU STRUCTURAL STUDIES OF SEMICRYSTALLINE POLYMER BLENDS USING SYNCHROTRON RADIATION”

P. Thiyagarajan, *Argonne National Laboratory, Argonne, IL*

“FROM LAB TO FAB: THE DEVELOPMENT AND DEPLOYMENT OF NEW METROLOGY TECHNOLOGY FOR THE GLOBAL SEMICONDUCTOR INDUSTRY”

B. Landes, *Dow Chemical Company, Midland, MI*

Industrial Applications of XRD

Organized by:

R.L. SNYDER, Georgia Institute of Technology,
Atlanta, GA, 404.894.1246,
bob.snyder@mse.gatech.edu

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

“XRD INVESTIGATIONS IN ANHYDROUS AND
HYDROUS CEMENTITIOUS SYSTEMS”

H. Poellmann, *University of Halle, Halle, Germany*

“CHARACTERIZATION OF STRUCTURAL FLUIDS DURING
FLOW BY SMALL ANGLE NEUTRON SCATTERING”

A.I. Nakatani, *Rohm and Haas Company,
Spring House, PA*

TITLE TO BE ANNOUNCED

J.D. Londono, *DuPont Company, Wilmington, DE*

Experience the ICDD 2004 X-ray Clinics

Practical XRF 26–30 April

Fundamentals of XRD 7–11 June

Advanced Methods in XRD 14–18 June

www.icdd.com

Special Sessions—XRF

Quantitative XRF

Organized by:

J.V. GILFRICH, EMERITUS, SFA, Inc./NRL, Bethesda,
MD, 301.365.5070, jgilfrich@juno.com

“QUANTITATIVE PROCEDURES IN TXRF”

P. Wobrauschek, *Atominstitut, Vienna, Austria*

“ADVANCED PULSE PROCESSING AND ANALYTICAL
METHODS FOR QUANTITATIVE ENERGY DISPERSIVE
XRF AND MICRO-XRF”

J. Nicolosi, *EDAX, Inc., Mahwah, NJ*

Trace Analysis

Organized by:

M.A. ZAITZ, IBM, Hopewell Junction, NY,
845.894.6337, zaitz@us.ibm.com

“TRACE ELEMENT ANALYSIS USING A BENCHTOP
TXRF-SPECTROMETER”

H. Stosnach, *Röntec GmbH, Berlin, Germany*

Problem Solving/Industrial Applications of XRF

Organized by:

J.A. ANZELMO, Anzelmo & Associates, Madison, WI,
608.824.0254, jaanzelmo@aol.com

“XRF APPLICATIONS IN THE SILICA INDUSTRY”

M. Paige, *US Silica, Berkeley Springs, WV*

“APPLICATIONS OF SAMPLE PREPARATION FOR XRF
ANALYSIS IN THE CEMENT AND CONCRETE
INDUSTRY”

D. Broton, *Construction Technology Laboratories,
Skokie, IL*

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 2004 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 2004 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 dxc@icdd.com by the due date. The certification form can be obtained on the Denver X-ray Conference web site: <http://www.dxcicdd.com>.

Workshops—XRD & XRF

How to do Synchrotron Experiments

Organized by:

I.C. NOYAN, IBM, Yorktown Heights, NY,
noyan@us.ibm.com

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

J.A. KADUK, BP Chemicals, Naperville, IL,
kadukja@bp.com

X-ray Physics

Organized by:

W.T. ELAM, University of Washington, Seattle, WA,
wtelam@u.washington.edu

Principles and Use of Microdiffraction & Microfluorescence

Organized by:

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

Optics

Organized by:

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

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

Workshops—XRD

Small Angle Scattering

Organized by:

N.S. MURTHY, University of Vermont, Burlington,
VT, sanjeeva.murthy@uvm.edu

J.D. LONDONO, DuPont Company, Wilmington, DE,
j-david.londono@usa.dupont.com

Microbeam X-ray Stress Analysis

Organized by:

I.C. NOYAN, IBM, Yorktown Heights, NY,
noyan@us.ibm.com

Rietveld Applications (Full Day)

Organized by:

A. KERN, Bruker AXS GmbH, Karlsruhe, Germany,
arnt.kern@bruker-axs.de

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

Specimen Preparation—XRD

Organized by:

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

Total Pattern Analysis

Organized by:

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

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

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

Workshops—XRF

Specimen Preparation—XRF (Full day)

Organized by:

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

D. BROTON, Construction Technology Labs, Skokie,
IL, dbroton@ctlgroup.com

Thin Film XRF Analysis

Organized by:

M. DIRKEN, PANalytical, Almelo, The Netherlands,
mark.dirken@panalytical.com

Quantitative XRF (Full day)

Organized by:

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

Fundamentals of XRF

Organized by:

L. CREASY, Timet North American Operation,
Morgantown, PA, larry.creasy@timet.com

Live instruments Industry-expert faculty Hands-on training XRF & XRD Clinics 2004

Practical XRF	26–30 April
Fundamentals of XRD	7–11 June
Advanced Methods in XRD	14–18 June

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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. 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

The deadline for receipt of abstracts is
1 March 2004

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

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 48

Abstract Submission

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

1. **On-line:** Please visit the DXC web site: www.dxc.icdd.com for complete instructions for on-line submission
2. **E-mail:** Send as an attached file, created in Adobe® PDF (preferred format), Microsoft® Word (6.0 through XP) or WordPerfect (6.0 through 7) to: dxc@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.

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.

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 3 September 2004 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.

Hotel Information

The 2004 Denver X-ray Conference will be held 2–6 August at the Sheraton Steamboat Resort, 2200 Village Inn Court, P.O. Box 774808, Steamboat Springs, Colorado 80477, U.S.A., phone: 1.800.848.8877 or 1.970.879.2220, fax: 1.970.879.7322, e-mail: Reservations.Steamboat@Sheraton.com, web site: <http://www.steamboat-sheraton.com>.

Reservations

Please identify yourself as a Denver X-ray Conference attendee when booking your reservation. Attendees are responsible for making their own reservations. Reservations should be made as soon as possible since there is a limited number of rooms available at the conference rate. Standard View rooms have been contracted at the conference rate of \$109 per day plus 9.4% tax. Rates are only applicable until 25 June 2004 (subject to availability). There is an optional \$8 per room per day resort fee. The Sheraton is also extending special view rooms to Denver X-ray Conference attendees at a discounted rate: Valley View rooms for \$119 per day plus tax; Slope View rooms for \$129 per day plus tax. Please visit the Sheraton web site: www.steamboat-sheraton.com for a description of the rooms. No shows, late arrivals and early departures will be assessed the total payment for the full length of stay as originally booked unless room is resold.

Student Rooms

There are a limited number of restricted view hotel rooms being offered to students at a discounted rate of \$85 per night plus 9.4% tax. Student rooms are shared—each room will be equipped with two queen 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. No shows, late arrivals and early departures will be assessed the total payment for the full length of stay as originally booked unless room is resold.

Overflow Hotel

Please identify yourself as a Denver X-ray Conference attendee when booking your reservation. The Steamboat Grand Resort Hotel, 2300 Mt. Werner Circle, Steamboat Springs, Colorado, U.S.A., phone: 1.970.871.5050 or 1.877.269.2628, fax: 1.970.871.5051, e-mail: grandbookit@steamboat.com, web site: www.steamboatgrand.com. Studio/Parlor rooms have been contracted for \$109 per night plus 14.9% tax and resort fee. Rates are only applicable until 30 June 2004 (subject to availability). A nonrefundable deposit equal to one night's room charge will be assessed to each individual's credit card at time of reservation.

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 for information on locating a roommate.

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Dates to Remember

Deadline for submission of abstracts
1 March 2004

Conference Programs mailed
(includes registration forms)
May 2004

Conference Preregistration begins
May 2004

Deadline to register at the
Sheraton Steamboat Resort
(Conference rate, subject to avail-
ability)
25 June 2004

Deadline for submission of manu-
scripts: at the Conference or no
later than
3 September 2004

Conference Preregistration Fees*

Full week: exhibits, workshops, sessions [†]	\$375
Monday & Tuesday: exhibits, workshops [†]	\$325
Wednesday, Thursday & Friday: exhibits, sessions [†]	\$325
Session organizers, invited speakers & workshop instructors [†]	\$100
Students, unemployed X-ray people, and persons 65 and older: exhibits, workshops, sessions	\$ 75

*Preregistration fees will only be valid until 5 July 2004.

Registration fees will increase after 5 July 2004.

[†]Includes a copy of Volume 48 of **Advances in X-ray Analysis** on
CD-ROM.

2004 Denver X-ray Conference Organizing Committee

John A. Anzelmo, Anzelmo & Associates, Madison, WI
Randolph Barton, Jr., Emeritus, DuPont Experimental Station, Wilmington, DE
Don Broton, Construction Technology Labs, Skokie, IL
Victor E. Buhrke, Chair, Consultant, Portola Valley, CA
John V. Gilfrich, Emeritus, SFA, Inc./NRL, Bethesda, MD
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Ting C. Huang, Co-Chair, Emeritus, IBM Almaden Research Center, San Jose, CA
James A. Kaduk, BP Chemicals, Naperville, IL
Terry Maguire, Conference Administrator, International Centre for Diffraction
Data, Newtown Square, PA
Scott T. Misture, NYS College of Ceramics at Alfred University, Alfred, NY
I. Cev Noyan, IBM, Yorktown Heights, NY
Robert L. Snyder, Georgia Institute of Technology, Atlanta, GA
Mary Ann Zaitz, IBM, Hopewell Junction, NY

For More Information

The *Call for Papers* and the tenta-
tive *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, con-
tact: **Denise Flaherty**
Phone: 610.325.9814
Fax: 610.325.9823
E-mail:
flaherty@icdd.com