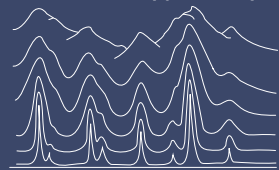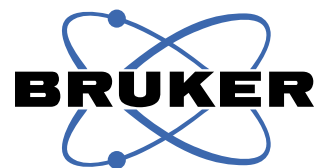# DXC

DENVER X-RAY CONFERENCE

74th Annual Conference on Applications of X-ray Analysis

4 - 8 August 2025

The Bethesda North Marriott Hotel
& Conference Center
Rockville, Maryland, USA

2025 PROGRAM

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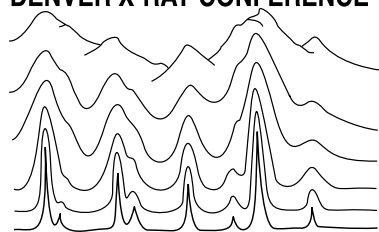**Greg McCarthy,** ND State University (Emeritus), USA

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Future Conference:
3 - 7 August 2026, The Westin Chicago Lombard, Lombard, Illinois, USA

Late Announcements – DXC Event App
Please download the official DXC Event App – Whova, for the latest program changes. Visit your App Store on your mobile device to download Whova or access using your desktop browser, the event invitation code is: dxc2025attendee.

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PDF-5+ 2026
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Inorganic & Organic entries are now combined into one powerful database with 1,126,200+ entries.

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- 1,022,600+ entries have I/I_c values for quantitative analysis by Reference Intensity Ratio
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From theory to hands-on exercises, this course offers techniques and skills to improve lab performance. Discover the latest in cutting-edge instruments such as TXRF, hand-held devices, energy dispersive and wavelength dispersive spectrometers through live demonstrations.

The XRF course covers the basics of X-ray spectra; instrumentation design; methods of qualitative and quantitative analysis; specimen preparation and applications for both wavelength and energy dispersive spectrometry. The course emphasizes quantitative methods, use of automated X-ray spectrometers, review of mathematical matrix correction procedures, and new developments in XRF.

www.icdd.com/xrf

Fundamentals of X-ray Powder Diffraction Course:

For the novice with some XRD knowledge or for the experienced with an interest in the theory behind XRD, this course offers a strong base for increased lab performance.

The course covers instrumentation, specimen preparation, data acquisition and qualitative phase analysis through live demonstrations. It consists of hands-on exercises, demonstrating the latest software, including data mining with the Powder Diffraction File (PDF) and use of the powder diffractometer: optical arrangement, factors affecting instrumentation profile width, choice and function of divergence slit, calibration and alignment, detectors, and X-ray optics.

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Advanced Methods in X-ray Powder Diffraction Course:

For the experienced XRD scientist, this session offers enhanced analysis skills through intense problem solving, as well as an introduction to the Rietveld Method. The course emphasizes computer-based methods of data interpretation, both for qualitative and quantitative phase analysis.

The advanced course covers a wide range of topics including systematic errors, factors affecting intensities of diffraction peaks; data reduction algorithms; phase identification; advanced data mining with the PDF and its application in search/match; powder pattern indexing methods; structure solution methods; quantitative phase analysis using both reference intensity ratio (RIR) and Rietveld Method.

www.icdd.com/xrd
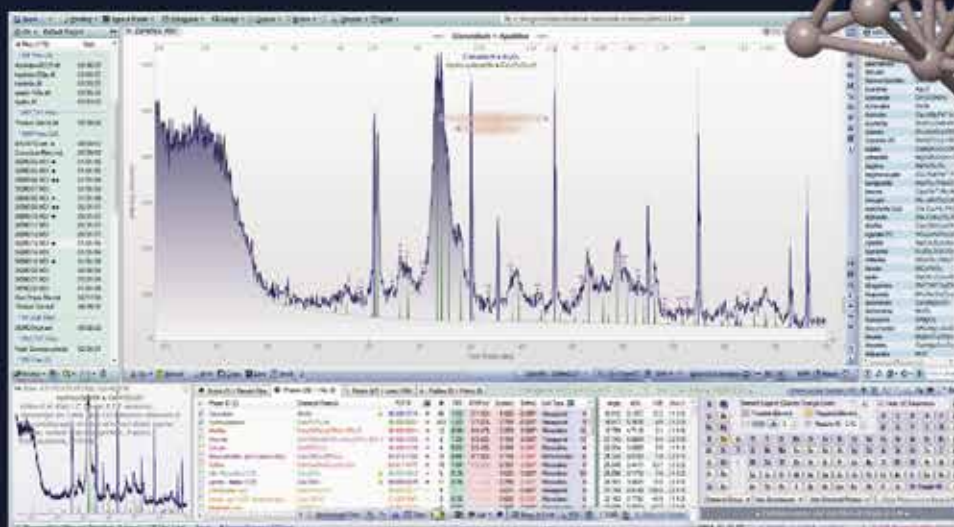
Rietveld Refinement & Indexing Course:

Powder pattern indexing and Rietveld structural refinement techniques are complementary and are often combined to determine the structure of a material. Successful indexing of a powder pattern is considered strong evidence for phase purity. Indexing is considered a prelude to determining the crystal structure, and permits phase identification by lattice matching techniques. This course introduces the theory and formalisms of various indexing methods and structural refinement techniques along with quantitative analysis. One unique aspect of this course is the extensive use of computer laboratory problem solving and exercises that teach method development in a hands-on environment.

www.icdd.com/rietveld

More information at www.icdd.com/icdd-education

Please note: A minimum of 10 registrants per course is required, otherwise the course will be cancelled and your registration fee will be refunded. You will be notified of a course cancellation no later than two weeks prior to the start of the course.

For More Information Contact:

Elizabeth Dempsey, Education Coordinator
Tel: 610.325.9814 **Fax:** 610.325.9823
Email: education@icdd.com

Location
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2026 LUDO FREVEL

Crystallography

SCHOLARSHIP AWARDS

DEADLINE
Applications must be submitted online by
9 OCTOBER 2025
All applications must be submitted via the ICDD website at
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DONATIONS: Scholarship awards are made possible by donations from both individuals and corporations. Contributions can be directed to the Ludo Frevel Crystallography Scholarship Fund at www.icdd.com/ludo-frevel-scholarship/#donate. 100% of all donations to the scholarship fund are applied to student funding, as defined by the program's charter. The Ludo Frevel Scholarship Program is a registered non-profit charity, and all donations are tax-deductible.

The science of crystallography has played a key role in the development of X-ray diffraction, electron diffraction and neutron diffraction for the elucidation of the atomic structure of matter. Crystallography is an interdisciplinary branch of science that is taught in departments of physics, chemistry, geology, molecular biology, metallurgy and materials science.

SCHOLARSHIP COMMITTEE

A committee, consisting of the ICDD Scholarship Committee Chairman, the ICDD Chairman, the Chairman of the ICDD Education Subcommittee, the ICDD Corporate Secretary, and three individuals without conflicts of interest, administers the awarding of the scholarships. One or more accredited professors (with no conflicts of interest) may be invited to assist in the selection of successful candidates.

APPLICANT QUALIFICATIONS

The applicant should be enrolled in a graduate degree program during the 2026 calendar year with major interest in crystallography — e.g., crystal structure analysis, crystal morphology, modulated structures, correlation of atomic structure with physical properties, systematic classification of crystal structures, phase identification and materials characterization. Students with a graduation date prior to 1 July 2026 are not eligible for the 2026 scholarship award. The term of the scholarship is one year. The recipient may submit an application for one renewal at the end of the first year. Because a limited number of scholarships are awarded, renewal applications will be considered on a competitive basis in conjunction with all applications that have been submitted up to the closing date.

EVALUATION OF APPLICATIONS

The amount of available funding limits the number of scholarships that can be granted in any given year.

A selection committee will evaluate the applications received to determine which are most deserving of a scholarship. These evaluations consider both the proposal (impact, innovativeness, originality, efficacy of approach, and relationship to crystallography) and the student (recommendation letter, educational track record, prior work and/or research, honors, awards, and professional activities) in determining which applicants will receive the award.

There is a limitation of one award per educational institution. In the event that two or more candidates from one institution are considered to be among the top applicants, only one will be given an award.

SCHOLARSHIP FUND RESTRICTIONS

The scholarship award is to be used by the graduate student to help defray tuition and laboratory fees. A portion of the award may be applied to registration fees and travel costs to attend accredited scientific meetings related to crystallography, where the recipient is presenting results of work performed as part of his or her graduate studies.

HOW TO APPLY
Applications must be submitted online by 9 October 2025

1. A description of the candidate's proposed graduate degree research (two-page limit) including:

• Purpose and rationale for the research
• Proposed methodology to be used in the study
• References and/or descriptions of the scientific background for the proposed research

2. A curriculum vitae including (two-page limit):

• Educational preparation (institutions, dates, degrees obtained and in progress, and particularly-pertinent course work)
• Awards, honors received
• Any research publications and/or presentations given
• Any work experience (dates, employers, positions)
• Professional activities, memberships

All applications are to be submitted online at the ICDD website: www.icdd.com/ludo-frevel-scholarship. Please follow the instructions on that web page.

The preferred method of application is via the web; however, if you require an alternate method, please contact **Elizabeth Dempsey** at **dempsey@icdd.com** or **610.325.9814.**

Submission of the two documents below must be in PDF format. You will also be asked for the contact information of your primary research advisor. An email will be sent to this advisor seeking a letter of recommendation on your behalf. His/her letter must be submitted on or before the deadline date.

2025 Denver X-ray Conference Exhibitors

Exhibits will be held in the Grand Ballroom

Exhibit Hours

Monday, 4 August	4:30pm - 7:00pm
Tuesday, 5 August	10:00am - 7:00pm
Wednesday, 6 August	12:00pm - 6:00pm
Thursday, 7 August	10:00am - 1:00pm

NO EXIT

COFFEE STATION

COFFEE STATION

SALON A

SALON B

SALON C

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35	Rigaku Americas
37	Herzog Automation
34	ADVACAM s.r.o.
38	Micro X-Ray Inc
33	Shimadzu Scientific Instruments, Inc.
22	Rigaku Americas
21	Shanghai Shuosong Electronic Technology Co., Ltd.
23	SAES
20	Proto Manufacturing
24	KETEK GmbH
19	Proto Manufacturing
8	Environmental Express Katanax
7	Hitachi High-Tech America, Inc.
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Booth: 34
Website: www.advacam.cz
Email: martin.tyburec@advacam.cz

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Email: contact@axo-dresden.de

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HUBER DIFFRACTION is a manufacturer of precise positioning and diffraction equipment for laboratory, synchrotron and neutron applications.

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Booth: 48
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Email: info@examinart.com

eXaminart LLC designs and manufactures cutting-edge analytical instruments for space exploration, commercial applications, and cultural heritage research. Our technologies enable high-performance material analysis in both laboratory and field settings.

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- Scanix XRF – A cost-effective, lower-resolution alternative to microScanix, currently under development.

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Booth: 17
Website: www.kailongx-ray.com/en/index.html
Email: info@kailongx-ray.com

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International Centre for Diffraction Data (ICDD)

Booths: 43, 44

Website: www.icdd.com

Email: info@icdd.com

ICDD, started in 1941, focuses on meeting the needs of the scientific community through the publication of the Powder Diffraction File™ (PDF®) and JADE® software. We strive to provide quality educational opportunities to exchange new ideas and information for materials characterization. ICDD's carefully curated and edited material identification databases interface with diffractometers and analysis systems of the world's leading X-ray equipment manufacturers and software developers. The Powder Diffraction File and JADE are available in a variety of licensing options. Visit us to discuss your analysis needs.

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BrillianSe is a core component of the inCiTe™ 3D X-ray Microscope, which offers submicron-resolution phase contrast imaging for non-destructive evaluation in materials science, microelectronics, and biomedical research.
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KETEK GmbH

Booth: 24

Website: www.ketek.net

Email: info@ketek.net

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a powerful combination

Malvern Panalytical

Booth: 50

Website: www.malvernpanalytical.com

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Materials Data
Booths: 41, 42
Website: www.materialsdata.com
Email: mdi@materialsdata.com

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Email: sales@pndetector.de

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Proto Manufacturing
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Website: www.protoxrd.com
Email: info@protoxrd.com

Proto is one of the fastest growing manufacturers of x-ray characterization equipment in the world. With our versatile team of scientists, you are sure to get the correct system for your experimental needs. Our product line includes systems for high-resolution XRD, powder XRD, x-ray crystallography, x-ray fluorescence, Laue orientation, and residual stress measurement. We also offer x-ray tubes, high-end MetalJet systems, and other custom creations.

Proto is committed to delivering quality products with world-class support that you can count on long after the initial sale.

SILVER SPONSOR

RaySpec Ltd
Booth: 48
Website: www.rayspec.co.uk
Email: sales@rayspec.co.uk

RaySpec Ltd is a global leader in customized Silicon Drift Detectors (SDD) and signal processing electronics for X-Ray Fluorescence applications. With decades of expertise in X-ray detector technology, RaySpec has built a reputation for innovation and reliability.

We provide cutting-edge detector solutions to original equipment manufacturers and specialist end-users in synchrotrons and research facilities worldwide. Our unique capabilities enable us to meet the most demanding technical requirements, offering detectors that cover a wide energy range, suited to your requirements. Whether optimized for high count rates, enhanced solid angles, or integration with third-party pulse processing electronics, we provide solutions that deliver with unparalleled precision and performance.

At RaySpec, we take pride in crafting bespoke solutions tailored to our customers' needs. If you have a project requiring an SDD, we will collaborate with you to develop the optimal solution—ensuring quality, reliability, and best possible performance.

Rigaku Americas
Booths: 22, 35
Website: www.rigaku.com
Email: info@rigaku.com

Rigaku Corporation is a leading manufacturer and supplier of analytical equipment with diverse groups specializing in X-ray, Electron, Infra-red and Thermal technologies.

The X-ray technologies embrace the primary X-ray applications of: X-ray Diffraction (XRD), Single Crystal Analysis (SCX), Small Angle X-ray Scattering (SAXS), X-ray Fluorescence (XRF) (Wavelength and Energy Dispersive) and X-ray imaging (XCT) including 3D X-ray microscopy. The recent introduction of Electron Diffraction for single crystal analysis completes Rigaku's unprecedented range of diffraction solutions for materials analysis.

For more than seven decades, Rigaku has been providing industry ready and customized solutions for materials characterization and welcomes an opportunity to consult with you on your materials analysis requirements.

RohmTek
Booth: 3
Website: www.rohmtek.com

RohmTek provides portable analytical laboratory rentals, field support, and custom calibration services for applications in environmental, industrial, energy, and research settings. The company maintains a fleet of handheld and benchtop instruments optimized for field and lab integration. RohmTek also operates a full-service analytical laboratory offering materials characterization and geochemical analysis. Services are designed to support high-throughput workflows, improve data quality, and enhance analytical performance across a range of operational environments.

SAES
Booth: 23
Website: www.saesgetters.com

Non-evaporable getters featuring high porosity and exceptional gas sorption performance, designed for use in medical and industrial X-ray tubes, as well as other applications requiring stringent vacuum or hermetically sealed conditions.

上海硕颂电子科技有限公司

Shanghai Shuosong Electronic Technology Co., Ltd
Booth: 21
Website: www.shuosong.com
Email: shuosong2010@163.com

Shanghai Shuosong is a professional supplier specializing in beryllium foil and brazed beryllium windows, delivering high-quality, customized solutions to the X-ray industry. Our products serve applications in X-ray diffraction instruments, handheld X-ray fluorescence spectrometers, elemental analysis instruments, industrial non-destructive X-ray testing equipment, and high-precision X-ray coating thickness gauges. Devoted to excellence, we strive to deliver exceptional performance and reliability across our product line.

SHIMADZU Excellence in Science

Shimadzu Scientific Instruments, Inc.
Booth: 33
Website: www.ssi.shimadzu.com
Email: maquaranta@shimadzu.com

Shimadzu will have on display the new EDX ALTRACE. The EDX ALTRACE is designed for high-sensitivity elemental analysis, achieving detection limits as low as 0.1 ppm for hazardous metals like cadmium and lead. It features a redesigned X-ray optical system, high-output 65 kV X-ray source, high-efficiency detector, and high-speed signal processing circuits. The instrument supports automated analysis of up to 48 samples, enhancing laboratory efficiency.

SmarAct GmbH
Booth: 9
Website: www.smaract.com/en
Email: info@smaract.com

SmarAct Motion delivers high-precision motion systems for demanding applications in science and industry. Its portfolio includes piezo positioners, flexures, and multi-axis systems. These solutions ensure nanometer-level accuracy, supporting cutting-edge research in high-energy physics, large-scale experiments, particle accelerators, and other advanced scientific infrastructures.

SILVER SPONSOR

SPECTRO Analytical Instruments & Gatan/EDAX
Booth: 18
Website: www.spectro.com
Email: spectro.info@ametek.com

Divisions of AMETEK, SPECTRO Analytical Instruments, is a worldwide leading supplier of OES and X-ray fluorescence spectrometry technology, used for the elemental analysis of materials in industry, research and academia. Gatan, Inc. is a leading manufacturer of instrumentation and software used to enhance and extend the operation and performance of electron microscopes. Gatan products, which include the EDAX portfolio, cover the entire range of the research process—from specimen preparation and manipulation to imaging and analysis.

STOE & Cie GmbH
Booth: 29
Website: www.stoe.com
Email: info@stoe.com

Originally founded in 1887 with the primary objective of manufacturing equipment for the optical examination of crystals, STOE has been at the forefront of powder and single crystal X-ray diffraction since the 1960s. Inventing and patenting the STOE transmission geometry technique for Powder XRD, they additionally developed the first pixel detector XRD system with an open Eulerian cradle for single crystals. Based in Darmstadt, Germany, STOE keeps the R&D, software programming, electrical and mechanical engineering, and production all in house, allowing to provide customers with standard as well as individual solutions. STOE is committed to delivering uncompromising quality, distinguishing themselves through their meticulous attention to detail. As a result, they have become THE go-to partner in X-Ray Diffraction for crystallographers, chemists, material scientists, and pharmacists worldwide.

Thermo Fisher Scientific
Booth: 10
Website: www.thermofisher.com

Thermo Fisher Scientific is committed to advancing material science and analytical chemistry through our innovative XRD and XRF solutions. We continuously invest in research and development to ensure we provide cutting-edge technology that meets the evolving needs of our customers. Known for the reliability and accuracy of our instruments, such as the Thermo Scientific™ ARL™ X'TRA Companion X-ray Diffractometer, which ensures detailed and accurate structural analysis crucial for complex sample characterization and widely used in academic research, industrial applications, and geological studies, we guarantee consistent and reproducible results. Additionally, our comprehensive support and services, including installation, training, and maintenance, ensure that our customers achieve optimal performance from their XRD and XRF instruments.

Join us in our mission to make the world healthier, cleaner, and safer through scientific excellence and innovation. For more information about our XRD and XRF solutions and how they can benefit your research or industry, please visit our booth or contact our representatives.

XIA LLC
Booth: 5
Website: www.xia.com
Email: chau@xia.com

XIA LLC is an ISO 9001:2015 certified company that invents, develops and markets advanced digital pulse processing and data acquisition electronics for use with x-ray and gamma-ray detectors in industry, university research and National Labs. We are technology leaders in high-rate spectroscopy electronics at synchrotron facilities around the world, as well as a major OEM supplier for compact low power handheld and benchtop spectroscopy instruments. Please visit the XIA Booth (#5) for more information.

XOS
Booth: 25
Website: www.xos.com
Email: info@xos.com

XOS is a global leader in elemental analysis, offering solutions that help drive innovation, ensure compliance, and improve customer efficiency in scientific research, semiconductor and battery manufacturing, pharma, and other industries. XOS advanced optics and OEM subsystems can increase precision, speed, and spatial resolution while helping decrease the instrument's size, complexity, and cost. Experts choose XOS for a broad range of applications, including microanalysis, plating thickness gauge, forensics, and high-resolution elemental mapping.

SCORPIUS™

Next Gen X-Ray Source

Elevate Your Performance with Scorpius™ XRT-450

Scorpius™ stands apart as the world's first optically excited miniature X-ray source, delivering ultra-stable precision, serviceable design, and unmatched cost-efficiency. While conventional XRF sources rely on fragile filaments and sealed, non-repairable HV systems, Scorpius combines optical excitation with gas-insulated serviceability, providing OEM swith longer life, consistent performance, and dramatically lower total cost of ownership, all in a compact, integration-ready platform.

What Makes Scorpius™ So Unique?

- **Built to Last**
  2x the Lifespan

- **Powerfully Efficient**
  <7W input delivers 6W output

- **Precision Engineered for Performance**
  <100 µm Spot Size

- **Seamless System Integration**
  USB-C and RS-232 communication built-in by default

- **Repairable by Design**
  Gas-insulated design allows depot servicing

- **Shielded and Safe**
  Meets IEC 62495 radiation shielding standards
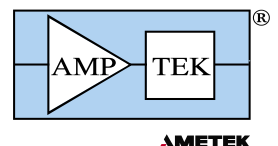
Monday AM Workshops, 4 August
9:00am – 12:00pm

Data Processing of Total Scattering and How to Avoid Pitfalls Along the Way — Salon A

Organizer & Instructor:
Yuanpeng Zhang, Oak Ridge National Laboratory, USA, zhangy3@ornl.gov
Matthew Tucker, Oak Ridge National Laboratory, USA, tuckermg@ornl.gov

The workshop aims to provide general users of neutron total scattering techniques with an understanding and hands-on experience in data processing, a crucial aspect often underestimated during data analysis. The difficulty in data analysis and the potential for drawing incorrect conclusions often stem from a lack of understanding of data processing. While data reduction and processing are typically handled by the instrument team, the complexity of total scattering data, such as scaling data to the absolute level and accounting for sample-specific contributions, often requires some level of post-processing. This workshop will educate general users on the significance of each data post-processing step, particularly in the context of conducting reverse Monte Carlo (RMC) modeling. Participants will gain insights into how data is processed, the importance of each step, and how to effectively perform post-processing on their data.

Intermediate to Advanced XRD – Part 1 — Salon B

Organizers & Instructors:
Tom Blanton, ICDD, USA, tblanton@icdd.com
Scott Misture, Alfred University, USA, misture@alfred.edu
Mark Rodriguez, Sandia National Laboratories, USA, marodri@sandia.gov

This workshop will discuss instrumentation and methods for powder XRD in the application of standard qualitative analysis and will detail progressively more challenging applications of XRD characterization including: quantitative analysis, profile fitting, lattice parameter refinement, crystallite size and microstrain determination, texture analysis, and structure refinement (Rietveld).

Basic XRF — Salon C

Organizers & Instructors:
Andy Drews, Ford Motor Company, USA, adrews@ford.com
Peter Wobrauschek, Atominstitut – TU Wien, Austria, wobi@ati.ac.at

This workshop provides a basic introduction to the principles of XRF specifically aimed at those new to the field. In the first half, there will be a general overview of the XRF technique, including a discussion of the basic principles of X-ray interactions with matter, how the technique is applied, optimization of the signal, and approaches to quantitative analysis. In the second half of the workshop, the focus will be energy dispersive XRF including details about sources, detectors and preferred samples for each technique, to illustrate some of the challenges and opportunities that the analyst may face. Parameters influencing sensitivity and detection limits will be discussed. Finally, the capabilities of bench-top EDX instruments, micro analyzers, Total Reflection XRF (TXRF) instrument and handheld analyzers will be presented.

Environmental Analysis
<div align="right">Salon A</div>

<u>**Organizers**</u> **& Instructors:**
<u>**Diane Eichert,**</u> Elettra – Sincrotrone Trieste, Italy, diane.eichert@elettra.eu
<u>**Martina Schmeling,**</u> Loyola University Chicago, USA, mschmel@luc.edu

The objective of this workshop is to acquaint participants with the field of environmental analysis and monitoring. The workshop will discuss the types of environmental samples commonly encountered by following the logic of "what is the question, that needs answer". The participants will learn about the complexity of these samples and how different X-ray-based techniques can provide specific answers to satisfy regulatory needs and to advance the state of knowledge about the environmental system. Besides a detailed presentation of the relevant X-ray analysis techniques, topics covered will include sampling, sample preparation, discussions of normative requirements, and fundamental concepts like limit of detection, quantification, and data validation.

Intermediate to Advanced XRD – Part 2
<div align="right">Salon B</div>

<u>**Organizers**</u> **& Instructors:**
<u>**Tom Blanton,**</u> ICDD, USA, tblanton@icdd.com
<u>**Scott Misture,**</u> Alfred University, USA, misture@alfred.edu
<u>**Mark Rodriguez,**</u> Sandia National Laboratories, USA, marodri@sandia.gov

This workshop will discuss instrumentation and methods for powder XRD in the application of standard qualitative analysis and will detail progressively more challenging applications of XRD characterization including: quantitative analysis, profile fitting, lattice parameter refinement, crystallite size and microstrain determination, texture analysis, and structure refinement (Rietveld).

Micro XRF & Trace Analysis
<div align="right">Salon C</div>

<u>**Organizers**</u> **& Instructors:**
<u>**Kouichi Tsuji,**</u> Osaka Metropolitan University, Japan, k-tsuji@omu.ac.jp
<u>**Peter Wobraushek,**</u> Vienna University of Technology, Austria, wobi@ati.ac.at
<u>**Christina Streli,**</u> TU Wien, Austria, streli@ati.ac.at
<u>**Gakuto Takahashi,**</u> Rigaku Corporation, Japan, g-takaha@rigaku.co.jp

Both beginners and experienced X-ray scientists and applicants, physicists, and chemists, will gain information by attending the Micro XRF & Trace Analysis workshop. Presentations on most modern techniques and instrumentation for trace element analysis using EDXRS will be given. Physical methods to improve minimum detection limits in XRF by background reduction will be discussed; Special emphasis will be on Synchrotron radiation as excitation source. Introduction to total reflection XRF (TXRF) and actual instrumentation will show achievable advantages and results in terms of detection limits, sensitivities and detectable elemental range down to light elements (e.g. Carbon). Micro-XRF and Confocal μ-XRF will be presented as methods for 2D and 3D spatial resolved elemental imaging. Applications from fields like environment, microelectronics, forensics, and life science will show the successful use of the various XRF spectrometric techniques. The possibilities of trace analysis using Wavelength dispersive XRF will also be covered, showing the benefits and limitations of the technique. A comparison of achievable detection limits with the various techniques on some specific samples will be discussed.

Quantitative Analysis of XRF
<div align="right">Strathmore A & B
(lower level)</div>

<u>**Organizer**</u> **& Instructor:**
<u>**Amber Quevy,**</u> Rigaku Americas, USA, amber.quevy@rigaku.com
<u>**Alexander Seyfarth,**</u> SGS North America Natural Resources Division, USA, alexander.seyfarth@sgs.com

This workshop will cover an introduction to fundamental parameters for quantitative XRF analysis by Alexander Seyfarth and examples using fundamental parameters for semi-quantitative analysis by Amber Quevy.

Methods for Complex Multi-Phase Samples   Salon A

Organizers & Instructors:
Tim Fawcett, ICDD, USA, dxcfawcett@outlook.com
Steve Hillier, The James Hutton Institute, Scotland, stephen.hillier@hutton.ac.uk

With advances in laboratory instrumentation, databases, and software one can analyze more materials at lower concentrations than ever before. It is not uncommon to have 8 or more phases in several types of common samples. This would include cements, soils, core drillings, industrial slags, formulated paints and pharmaceutical tablets. In the cases of advanced building materials and formulated pigments and drugs, small amounts of key ingredients are added to impart desirable physical properties, whilst in soils minor amounts of some minerals may be key to understanding their functional properties; so, there is a common desire to identify and quantify these materials.

When analyzing these samples, one frequently encounters severe peak overlap, with and without the complication of non-crystalline or nanomaterials. This causes the typically high accuracy d-spacings, required for identification, to be merged, shifted or even hidden. Decomposing peak profiles and intensities needed for quantitative analysis will have similar difficulty. This workshop will provide an overview of methods and strategies used to tackle such difficult problems. This will include using customized subfiles for identification, control files for quantitation, full pattern matching methods, baseline determination, cluster analyses, multi-specimen, ancillary treatments, designed separations, and graphics techniques.

Mapping Analysis – Part 1   Salon B

Organizer & Instructors:
Andy Drews, Ford Motor Company, USA, adrews@ford.com
Andrew Crawford, Michigan State University, USA, crawf472@msu.edu
Andrew Fram, PNDetector GmbH, Germany, andrew.fram@pndetector.de

This workshop will present topics on mapping methods for the beginner and experienced users that covers basic science, measurement techniques, data analysis and advanced methods. Although the focus will be on mapping XRF, the intent is that much of the presentation will be applicable to other mapping modalities. The workshop will be presented by three speakers.

The first talk by Andy Drews from Ford Motor Company will focus on the basics of mapping using scanning or direct imaging approaches. This will cover the choice of sources and detectors, optical systems, data collection and basic data manipulation. Some examples will also be provided to illustrate common methods of data processing and presentation.

In the second talk, Andrew Crawford from the Michigan State University's Q-Beam facility will describe recent progress in optimizing data collection and streamlining quantitative analysis workflows, with a focus on multimodal approaches. He will also discuss efforts to adapt synchrotron-based spectral fitting strategies originally developed for monochromatic, high-intensity XRF sources for use with tube-based benchtop systems. Finally, a novel method for correcting ice attenuation in biological samples embedded in vitreous ice will be presented.

In the third talk, Andrew Fram from PNDetector will introduce the principles and capabilities of energy-resolving "colour" X-ray cameras, with a focus on their application in full-field XRF mapping and energy-dispersive X-ray diffraction (EDXRD). These detectors simultaneously capture the spatial position and energy of individual photons at each pixel, enabling a range of advanced imaging and analytical techniques. The presentation will outline how these systems differ from conventional scanning or energy-integrating detectors, present case studies demonstrating their practical use.

Advancing Science through Data Informatics: Publishing, Validation, and Applications   Salon C

Organizers & Instructors:
Brian Maranville, NIST, USA, brian.maranville@nist.gov
William Ratcliff, NIST, USA, william.ratcliff@nist.gov
Niaz Abdolrahim, University of Rochester, USA, niaz@rochester.edu
Nicola Ashcroft, International Union of Crystallography, USA, na@iucr.org
Suri Kabekkodu, ICDD, USA, kabekkodu@icdd.com

As X-ray and Neutron diffraction continue to evolve, the importance of data-driven research has become increasingly evident. This workshop aims to bring together experts from various fields to discuss the latest developments and challenges in diffraction data informatics. The workshop will cover a broad range of topics related to diffraction data, including publishing and validation of data, storage, and collation of data in databases, and applications enabled by data. We will explore the current state of data storage and curation at user facilities and discuss best practices for ensuring the long-term accessibility and usability of data. Specialized topics will include the handling and analysis of magnetic and powder diffraction data, highlighting the unique challenges and opportunities in these areas.

Time	Session
9:00 - 9:35am	Niaz Abdolrahim - Spectra to Structure: Machine Learning for Automated XRD Classification
9:35 - 10:10am	Brian Maranville - Integrating Metadata into NCNR Facility Data Repositories: FAIR Carrots and Sticks
10:10 - 10:40am	Coffee Break in Exhibit Hall
10:40 - 11:15am	Suri Kabekkodu - 80+ Years of the Powder Diffraction File™ (PDF®): Application in Materials Characterization
11:15 - 11:50am	Nicola Ashcroft - FAIR Data and IUCr Publications - Developments in CheckCIF
11:50am - 12:00pm	Q&A

Spectra Processing Using PyMCA
<div align="right">**Strathmore A & B**
(lower level)</div>

Organizers **& Instructors:**
Diane Eichert, Elettra – Sincrotrone Trieste, Italy, diane.eichert@elettra.eu
Martina Schmeling, Loyola University Chicago, USA, mschmel@luc.edu

The objective of this workshop is to provide beginners in XRF spectral analysis with sufficient tools to get started. The workshop will feature both presentations covering theoretical aspects of spectral processing like peak fitting and quantification/imaging and hands-on instruction to apply those on actual examples. Fundamentals of XRF analysis including instrumental parameters and their impacts on XRF data, calibration considerations, background and spectral artefacts will be covered in detail. The PyMca toolkit, developed by Solé at ESRF, will be used on real data to illustrate the concepts during the hands-on training. Participants are welcome to use their own spectra to practice their knowledge.

Tuesday PM Workshops, 5 August
1:30pm – 4:30pm

Raman Spectroscopy for Mineral Identification
<div align="right">**Salon A**</div>

Organizers **& Instructor:**
Paul Bartholomew, Quinnipiac University, USA, paul.bartholomew@quinnipiac.edu
Jeff Post, Smithsonian Institution, USA, postj@si.edu
Suri Kabekkodu, kabekkodu@icdd.com

This workshop will introduce the basic principles and practices of Raman Spectroscopy with a focus on application to mineral identification. The principles section will cover the nature of the Raman effect, the components of a Raman spectrometer, and the essentials of obtaining and interpreting Raman spectra from minerals. The practices section will review the range of available instrument configurations, sample preparation strategies, and standard operating procedures for data collection. The session will conclude with demonstrations of the recently introduced ICDD PDF-4/Minerals 2025 Raman file and MDI JADE Raman Tools for phase identification.

Hands-on access to PDF-5+ and JADE will be available via web access through a remote desktop server. Attendees should bring their laptop computer with wireless web access (Edge, Chrome, Firefox).

Mapping Analysis – Part 2
<div align="right">**Salon B**</div>

Organizer **& Instructors:**
Andy Drews, Ford Motor Company, USA, adrews@ford.com
Andrew Crawford, Michigan State University, USA, crawf472@msu.edu
Andrew Fram, PNDetector GmbH, Germany, andrew.fram@pndetector.de

This workshop will present topics on mapping methods for the beginner and experienced users that covers basic science, measurement techniques, data analysis and advanced methods. Although the focus will be on mapping XRF, the intent is that much of the presentation will be applicable to other mapping modalities. The workshop will be presented by three speakers.

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Benchtop and Handheld Applications
<div align="right">**Salon C**</div>

Organizer **& Instructors:**
Poulami Dutta, Dow, USA, pdutta1@dow.com
Alexander Seyfarth, SGS, USA, alexander.seyfarth@sgs.com

Aimed at industrial users, vendors, and service labs to understand and improve deployment of applications within a larger organization or to satellite labs. We will discuss and share good practices on method development and deployment in an industrial or mining environment with respect to the current technology available.

The workshop will teach/illustrate how to perform an instrument selection with respect to capabilities and regional service availability.

We will also cover good practices in method development, validation and deployment for production site QC/Production control applications based on our experience in chemical, polymer, metal smelting, and mining areas.

The Monday evening XRD poster session will be held 5:00pm – 7:00pm in the Grand Ballroom, in conjunction with a wine and cheese reception and exhibits. "Best Poster" awards will be given at the end of the session, including "Best Student Poster".

Chairs:
Ercan Cakmak, Oak Ridge National Laboratory, USA, cakmake@ornl.gov
Tom Watkins, Oak Ridge National Laboratory, USA, watkinstr@ornl.gov

Sponsored Award:
Rigaku proudly sponsors the Best Student XRD Poster Presentation award at the Denver X-ray Conference, celebrating innovation, research excellence, and meaningful scientific or community impact. The winner will receive a pair of Bose QuietComfort Ultra Bluetooth Wireless Earbuds, Diamond 60th Anniversary Edition. This award is separate from the DXC Best Student Poster Award.

D-5   Crystal Structures of Large-Volume Commercial Pharmaceuticals
James Kaduk*, North Central College, USA
T. Blanton, A. Dosen, ICDD, USA

D-9   ICDD® Polymer Diffraction Raw Data Project – Polymers, Minerals, and Metals
Thomas Blanton*, D. Bohnenberger, M. Rost, ICDD, USA

D-10   Effect of Polymorphism of 5-Fluorocytosine on Dissolution Rate
Kuo-Chih Shih*, M. Hawkridge, Malvern Panalytical, USA

D-25   X-ray Analysis of Small Grain Synthetic Diamonds for Industrial Use
Jianhua Li*, Rice University, USA

D-27   Development of a Diffractometer with a Robotic Arm for Holding a 2D Detector for in-situ/Operando Measurements
Kazushi Sumitani*, T. Koganezawa, R. Kumara, ~~WITHDRAWN~~ **atanabe, H. Tajiri,** Japan Synchrotron Radiation Research Institute, Japan

D-29   Thermal Expansion of Alpha-Uranium Determined by Glancing-Angle X-ray Diffraction
Cheng Saw*, W. Siekhaus, Lawrence Livermore National Laboratory, USA

D-30   New Insight into the Early Stages of Oxide-Growth on Uranium Surfaces at Low Temperatures
Cheng Saw*, Lawrence Livermore National Laboratory, USA

D-39   Advancing PDF Analysis: Fast and High-Quality Local Structure Insights with XRDynamic 500
Tom Faske*, M. Kremer, P. Vir, B. Schrode, Anton Paar GmbH, Austria

D-41   Observation of the Structural Dynamic Behavior of Triacylglycerol Using an Advanced Wide-Angle X-ray Diffraction Instrument
Kaho Hamada*, Y. Taniguchi, K. Hibino, K. Omoto, K. Nagao, Rigaku Corporation, Japan

D-42   Expanding the Scope of X-ray Diffraction Using Inelastic X-ray Scattering
Taishun Manjo*, A. Baron, SPring-8, Japan

D-44   Strides Towards a Compact USAXS Module at I22
Emily Arnold*, A. Smith, T. Snow, N. Terrill, Diamond Light Source, United Kingdom
B. Pauw, Bundesanstalt für Materialforschung und -prüfung (BAM), Germany

D-47   Uncertainties Evaluation in SiGe Epitaxial Layer Using X-ray Reflectivity (XRR)
Chia-Hsun Chen*, C.-H. Su, C.-H. Chang, F.-H. Lin, S.-C. Lo, W.-E. Fu, Center for Measurement Standards, Industrial Technology Research Institute, Taiwan

D-48   Development of X-ray Scattering Techniques for Iron Oxide Nanoparticles Solution Analysis
Chiu-Hun Su*, F.-H. Lin, S.-C. Lo, Center for Measurement Standards, Industrial Technology Research Institute, Taiwan
C.-J. Su, Y.-Q. Yeh, K.-F. Liao, National Synchrotron Radiation Research Center, Taiwan
D. Hsu, Agilent Technologies Inc., Taiwan

D-52   Enhancement of 5-Fluorocytosine Monohydrate Stability Through Doping   `STUDENT`
Lindsey Foote*, V. Nicely, J. Swift, Georgetown University, USA

D-53   The Challenge of Potassium Urate   `STUDENT`
Shae London*, J. Swift, Georgetown University, USA
T. Fawcett, ICDD, USA

D-54   Tuning the Moisture Sorption Properties of Cytosine   `STUDENT`
Elena Marchetti*, M. Fleming, C. Brenna, J. Swift, Georgetown University, USA

D-64   Deposition and Structural Characterization of Pd Films
Qiyin Lin*, University of California Irvine, USA

D-77   Evaluation for Preferred Orientation of Natural Fluorite Crystals   `STUDENT`
Hibiki Shirata*, T. Nakamura, Y. Koike, Meiji University, Japan

D-80   Synthesis of a Tetranuclear Manganese Complex with End-To-End Dicyanamide as a Bridging Ligand. Crystal Structure Determination, ATG and Magnetic Properties Study. Compound Model for the Study of Long-Distance Electronic Communication
Thiam Ibrahima Elhadji*, T. Mariama, G. Mohamed, D. Ousmane, Laboratoire de Chimie de Coordination Organique, Senegal
R. Pascal, Université Paris-Saclay, France

D-81   5D X-ray Image Processing – Overcoming Big Data Challenges in Synchrotron Science
Andrew Fram*, M. Huth, B. Eckert, P. Majewski, H. Soltau, PNDetector GmbH, Germany
L. Strüder, PNSensor GmbH, Germany

D-82   X-ray Structural Analysis of N-Doped PtCo Intermetallic Superlattices for Enhanced Fuel Cell Electrocatalysis
Jong-Sung Yu*, M.I. Maulana, H.-Y. Lee, DGIST, Republic of Korea

D-86   Identification of Fire Features in Lithic Tools Using Non-Invasive and Non-Destructive Methods
Oscar G de Lucio*, A. Nagaya, Instituto de Física, UNAM, Mexico
S. Ortiz Ruiz, Instituto de Investigaciones Antropológicas, UNAM, Mexico
C. Peraza Lope, A. Gongora Salas, Centro INAH Yucatán, Mexico
D. Paz Rivera, Facultad de Arquitectura, UADY, Mexico

D-91   Sample Displacement Error Comparison Between XRD Based Residual Stress Measurement Setups
Aleks Rosenbaum*, M. Barbul, S. Muhlenberg, W. Woerner, S.-Y. Lee, I. Cernatescu, Pratt & Whitney, USA

D-109   Effect of Mechanical Activation on the Underclay Component of Coal Refuse   `STUDENT`
Toluwalase Ogunsunlade*, Pennsylvania State University, USA

D-119   Establishing Relationships Between Ferromagnetism and Crystal Structure in Cr1-xTe via X-ray Diffraction Studies   `STUDENT`
Cecilia Wheeler*, T. Romig, E. Rodriguez, University of Maryland College Park, USA

D-124   X-ray Diffraction Studies of Metastable Forms of Superionic Conductor Cu2-xS   `STUDENT`
Michael McHale*, Q. Fu, E. Rodriguez, University of Maryland, USA

D-137   Response of Cristobalite Within a Glass Matrix to Compressive Strain Field
Mark Rodriguez*, S. Dai, B. Elisberg, B. Mann, Sandia National Laboratories, USA

D-145   Impact of High Pressure on Amorphous Pharmaceuticals and Biopharmaceuticals
Susana C. M. Teixeira*, University of Delaware & NIST, USA
J. Kalkowski, K. Wu, S. Chen, A. Sheikh, E. Shalaev, AbbVie, USA
B. Haberl, M.G. Tucker, Oak Ridge National Laboratory, USA
X. Wen, J. Asamoah, California State University, USA
J.E. Curtis, NIST, USA
I.D.H. Oswald, University of Strathclyde, United Kingdom

D-152   Determining Crystal Orientation via Neutron Transmission
Luc Dessieux*, M. Frost, Oak Ridge National Laboratory, USA

D-156   Evolution of Accumulated Plastic Strain at Fine Length-Scale in Solid-State Additive Process   `STUDENT`
Cole Franz*, B. Wing, K. Page, The University of Tennessee, USA
S. Babu, University of Maryland, USA

D-158   2D Metal Halide Perovskites with Iodo-aromatic Ligands - Structural and Optoelectronic Properties   `STUDENT`
Rawan Hirzalla*, I. Hadar, The Hebrew University of Jerusalem, Israel

D-160   Mail-in Program Enabled by Automated High-throughput High-resolution X-ray Diffraction Capabilities at SSRL BL 2-1
Sikhumbuzo Masina*, M. Cosby, N. Strange, V. Thampy, C. Troxel Jr., K. Stone, Stanford Synchrotron Radiation Lightsource, SLAC National Accelerator Laboratory, USA

D-161   Quantifying the Platy Morphology of Gangue Minerals with X-ray Diffraction: A Talc Case Study   `STUDENT`
Daniel Dodoo*, University of Melbourne & CSIRO Mineral Resources & ARC Centre of Excellence for Eco-Efficient Beneficiation of Minerals, Australia
N.A.S. Webster, CSIRO Mineral Resources & ARC Centre of Excellence for Eco-Efficient Beneficiation of Minerals, Australia
M. Glenn, N. Owen, CSIRO Mineral Resources, Australia
L. Forbes, The University of Queensland & ARC Centre of Excellence for Eco-Efficient Beneficiation of Minerals, Australia
S.P. Usher, P.J. Scales, A.D. Stickland, University of Melbourne & ARC Centre of Excellence for Eco-Efficient Beneficiation of Minerals, Australia
J.R. Black, The University of Melbourne, Australia

D-163   Synthesis and Photoreactivity of Uranyl-Viologen Materials as a Function of Molecular Assembly   `STUDENT`
Mary Elias*, J. Herder, C. Cahill, The George Washington University, USA

D-164   Developing Radiation Response Function with XRD and Machine Learning   `STUDENT`
Omololu Makinde*, United States Army & University of South Florida, USA

D-166   Synthesis of Copper Oxide Nanoparticles Based on The Variation of Type of Alkali and Type of Microwave and Its Effect in Crystal Size
Patricia Altuzar-Coello*, E. Chavira-Martínez, J. Campos-Álvarez, R. Morán-Elvira, G. Casarrubias-Segura, J. Romero-Ibarra, Universidad Nacional Autónoma de México, Mexico
C. Martínez-Alonso, Universidad Autónoma de Guerrero, Mexico

D-167   Texture Analysis of Cold-Worked 304L Stainless Steel
Nichole Valdez*, M. Rodriguez, C. Finfrock, A. Olivier, Sandia National Laboratories, USA

D-168   Powder Diffraction of Non-Equilibrium Systems: The Importance of Understanding Change
Vanessa Peterson*, Australian Nuclear Science and Technology Organisation & University of Wollongong, Australia

The Tuesday evening XRF poster session will be held 5:00pm – 7:00pm in the Grand Ballroom, in conjunction with a wine and cheese reception and exhibits. DXC "Best Poster" awards will be given at the end of the session, including "Best Student Poster".

Sponsored Awards:

Amptek Award for Best Student XRF Poster - Best Student Poster during the XRF Poster Session and awarding the winner with an Apple iPad. This award is separate from the DXC Best Student Poster Award.

XOS Innovation Award™ - recognizes the Best Poster Presentation at the Denver X-ray Conference characterized by the spirit of innovation, excellence in research, and scientific and/ or community impact. Selection Criteria can be found within the Whova event app, under the XRF Poster Session. Grand prize awardee will receive the all-new Amazon Kindle Paperwhite Signature Edition (32 GB) – with auto-adjusting front light, wireless charging and weeks of battery life. Runner up will receive Soundcore by Anker Liberty Wireless Earbuds.

Rigaku proudly sponsors the Best Student XRF Poster Presentation award at the Denver X-ray Conference, celebrating innovation, research excellence, and meaningful scientific or community impact. The winner will receive a pair of Bose QuietComfort Ultra Bluetooth Wireless Earbuds, Diamond 60th Anniversary Edition. This award is separate from the DXC Best Student Poster Award.

Chairs:

Diane Eichert, Elettra – Sincrotrone Trieste, Italy, diane.eichert@elettra.eu
**Martina Schmeling,** Loyola University Chicago, USA, mschmel@luc.edu

F-14 Determination of Arsenic (As) and Lead (Pb) in Color Additives containing the Overlapping Major Element Bromine (Br) by X-ray Fluorescence Spectrometry
Kristen Reese*, U.S. Food and Drug Administration, USA

F-31 Reducing the Psychological Preparation Barrier to XRF Oil Solidification
Thanh Nguyen*, G. Williams, VPrep Corp, USA

F-34 Utilizing X-ray Fluorescence for Rapid and Cost-Effective Characterization of Soil and Water Samples in Reservoirs Potentially Impacted by Heavy Metal Contamination
Debbie Siples*, Malvern Panalytical, USA

F-37 Quantitative and Chemical State Analysis of Lithium-Ion Battery Electrode Materials with a Laboratory X-ray Emission Spectrometer
Hikari Takahara*, Y. Wang, T. Togehara, Rigaku Corporation, Japan
K. Shono, Y. Kobayashi, Tokyo Electric Power Company Holdings, Incorporated, Japan
H. Kobayashi, National Institute of Advanced Industrial Science and Technology, Japan

F-43 The Role of XRF for Investigation of Elemental Composition in Breast and Prostate Cancer
Emily Arnold*, A. Smith, T. Snow, Diamond Light Source, United Kingdom
S. Gosling, B. Herrington, L. Adams, M. Kitchen, C. Greenwood, Keele University, United Kingdom
A. Ajeer, University College London, United Kingdom
I. Lyburn, Cranfield University & Gloucestershire Hospitals NHS Foundation Trust & Cobalt Medical Charity, United Kingdom
P. Cool, The Robert Jones and Agnes Hunt Orthopaedic Hospital, United Kingdom
N. Stone, Exeter University, United Kingdom
K. Rogers, Cranfield University, United Kingdom

F-56 Application of Spatially Resolved Micro X-ray Fluorescence Imaging to Identification of Potentially Hazardous Pigments in Historic 19th and 20th Century Books
Analicia Robbins*, N. Gordon, A. DeHoyos, S. Kolomyjec, B. Southwell, D. Wright, Lake Superior State University, USA

F-57 Optimization of X-ray Backscatter Imaging in a Laboratory Micro X-ray Fluorescence Spectrometer: Applications in Structural Characterization in Engineered and Natural Materials
Derek Wright*, N. Gordon, B. Southwell, Lake Superior State University, USA

F-79 Elemental Distribution Measurement of MSWI Fly Ash and Soil-Mixed Geopolymer by Micro-Focused X-ray Fluorescence Spectrometry `STUDENT`
Shunsuke Hashizume*, H. Shirata, S. Inose, T. Honda, Y. Koike, Meiji University, Japan

F-95 Latest Generation of Silicon Drift Detectors and Readout Electronics
Christoph Langer*, S. Pahlke, D. Steiner, J. Knobloch, KETEK GmbH, Germany

F-102 Performance Characteristics of a High Efficiency, Small Spot Size, Long Life, Miniature X-ray Source
Greg Hoffman*, M. Dinsmore, Amptek, USA

F-104 Optimization of CO_2 Snow Cleaning for NASA Genesis Samples
Martina Schmeling*, M. Frilot, S. Jezuit, A. Kramer, Loyola University Chicago, USA

F-105 Exploring the Elemental Composition of Calcifications in Prostate Cancer
Sarah Gosling*, L. Adams, M. Kitchen, C. Greenwood, Keele University, United Kingdom
E. Arnold, K. Geraki, T. Snow, Diamond Light Source, United Kingdom
P. Cool, The Robert Jones and Agnes Hunt Orthopaedic School & Keele University, United Kingdom
I. Lyburn, Gloucestershire Hospitals NHS Foundation Trust & Cobalt Medical Charity & Cranfield University, United Kingdom
K. Rogers, Cranfield University, United Kingdom
N. Stone, University of Exeter, United Kingdom

F-111 Can You Make a K-Liner?
Alexander Seyfarth*, SGS North America & Colorado School of Mines, USA
T. Monecke, Colorado School of Mines, USA

F-113 X-ray Fluorescence Analysis of Portland Cement and Clinker for Major and Trace Elements Using XRF Technique
Mohammed Salah Qorani Abdelbarie*, GOEIC, Egypt

F-115 Fast Discrimination of X-ray Fluorescence Peaks from Spectrum Background Using Support Vector Machines
Kouichi Tsuji*, A. Okada, Osaka Metropolitan University, Japan

F-117 Room-Temperature 4H-SiC p-i-n Radiation Detector with High Energy Resolution `STUDENT`
Renjie Xu*, Q. Yang, Y. Guo, J. Zhao, Nanjing University, China

F-127 Analysing Industrial Slag Samples with Laboratory X-ray Absorption Near Edge Structure -Challenges and Opportunities `STUDENT`
Ursula E.A. Fittschen*, F. Mähler, Clausthal University of Technology, Germany

F-134 Synchrotron Radiation Induced M X-ray Intensity Ratios for 72Hf `STUDENT`
Harpreet Singh*, A. Kumar, S. Puri, Punjabi University, India
A.G. Karydas, NCSR Demokritos, Greece

F-149 A Detailed Characterization of X-ray Capillary Optics and Their Potential for Astrophysics
Clio Sleator*, B. Phlips, U.S. Naval Research Laboratory, USA
A. Lane, Technology Service Corporation, USA
T. Okajima, NASA Goddard Space Flight Center, USA
K. Tamura, University of Maryland Baltimore College, USA
B. Waffle, N. Gao, XOS, USA

F-150 18115-4: A New ISO Proposal for a Standard Focused on TXRF Terminology
Diane Eichert*, ELETTRA - Sincrotrone Trieste, Italy
T. Hase, University of Warwick, United Kingdom

F-151 Biofortification of Iodine in Vegetables- Iodine K-edge XANES in various Plant Parts using XRF-XANES
Christina Streli*, D. Ingerle, P. Kraus, TU Wien, Austria
P. Dobosy, HUN-REN Center for Ecological Research, Hungary
H. Nguyen, ELTE Eötvös Loránd University, Hungary
M. Radtke, A. Buzanich, Bundesanstalt für Materialforschung und -prüfung, Germany

F-154 An In-House X-ray Fluorescence Spectrometer Development for in Vivo Analysis of Plants `STUDENT`
Eduardo Santos*, G. Montanha, H. de Carvalho, University of São Paulo, Brazil

F-155 Synchrotron Applied for Plant Analysis `STUDENT`
Eduardo Santos*, University of São Paulo, Brazil

F-162 XRF Analyses at the World's Premier Nuclear Facility
Devin Gray*, K. Landry, I. Martinez, R. Mondragon, T. Natzic, T. Trujillo, Los Alamos National Laboratory, USA

F-165 Building a Circular Economy: Using XRF and XRD to Evaluate Slags for Use in Stone Wool Production
Jessica Grealy*, L. Hernandez, J. Ramirez, Owens Corning, USA
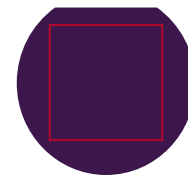
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PPB DETECTION LIMITS

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Intensity

Energy [keV]
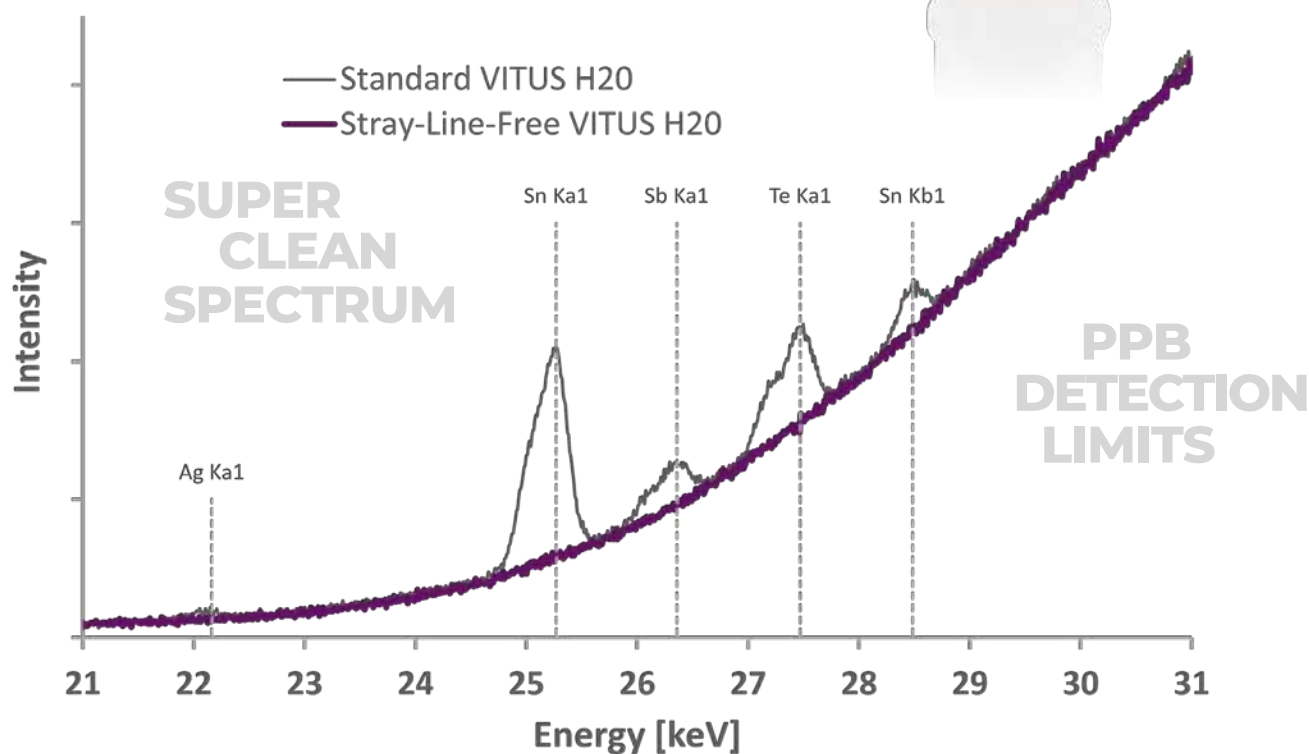
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Moxtek® MAGPRO™ X-ray Sources are built for portable and benchtop XRF instruments, with a primary focus on enabling continuous operation to extend the equipment's lifespan.

Key Advantages

- **Improved Reliability:** Integrated design without external HV cables reduces the potential for arcing failures.

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- **Capable of Operating at -4kV:** TUB00050 products can only operate between -10kV and -50kV, however, TUB00157 can operate as low as -4kV in specific measurement applications.

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Plenary Session - Wednesday AM
8:30am – 12:00pm, 6 August

Plenary - From Waste to Resource: Nanoplastics, Circular Chemistry, and Microanalysis   Salon A & B
Chair: Peter Wobrauschek, Atominstitut – TU Wien, Austria, wobi@ati.ac.at

8:30		Welcoming Remarks and Awards **Scott Misture,** Chair of the Denver X-ray Conference Organizing Committee, Alfred University, USA
		2025 Barrett Award presented to **Vanessa Peterson**, Australia's Nuclear Science and Technology Organisation (ANSTO), Australia. The award will be presented by **Scott Misture**, Alfred University, USA, Chair of the Denver X-ray Conference Organizing Committee.
		2025 Jenkins Awards presented to both **Tom Blanton,** ICDD, USA and **George Havrilla,** Los Alamos National Laboratory, USA. The awards will be presented by the Chair of the Jenkins Award Selection Committee, **Tim Fawcett,** ICDD, USA.
		2025 Robert L. Snyder Student Awards to be announced by **Tom Blanton**, Executive Director, ICDD, USA.
		Remarks by the Plenary Session Chair, **Peter Wobrauschek**.
9:00	P-65	Detecting Nanoplastics – Challenges for Environmental Analysis **Florian Meirer*,** Utrecht University, Netherlands
9:45	P-11	Recycling of Lithium-Ion Batteries – Engineering Artificial Minerals as a Promising Approach **Michael Fischlschweiger*,** Clausthal University of Technology, Germany
10:30		Enhanced Coffee Break – Sponsored by XOS
11:00	P-138	The Upgraded APS – Status, Early Results, and Emerging Opportunities **Stefan Vogt*,** Argonne National Laboratory, USA
11:45		**Barrett Award Presentation** - Powder Diffraction of the Non-Equilibrium System - Understanding Change in Functional Materials Research **Vanessa Peterson*,** Australian Nuclear Science and Technology Organisation & University of Wollongong, Australia

Oral Sessions, Wednesday PM
6 August

Early Career Researchers: Spotlight on the Next Generation   Salon B
Chair: Sarah Gosling, Keele University, United Kingdom, s.b.gosling@keele.ac.uk

2:00	S-45	Effects of Extrinsic Size Constraint on Biogenic Nano-apatites: An Interleaved USAXS/SAXS/WAXS Study **Emily Arnold*,** Diamond Light Source, United Kingdom **S. Gosling, B. Herrington, C. Greenwood,** Keele University, United Kingdom **K. Rogers,** Cranfield University, United Kingdom
2:20	S-89	A Simulation Study of Self-Absorption in Synchrotron X-ray Fluorescence **Pei-Tzu Lee*, Y. Jiang, O. Antipova,** Argonne National Laboratory, USA
2:40	S-63	X-ray Diffraction Evaluation of Gadolinium Silicate Phases for Barrier Coatings **Laura Wilson*, R. Webster, J. Stokes,** NASA Glenn Research Center, USA
3:00		Break

Flash Poster Session

3:30	D-52	Enhancement of 5-Fluorocytosine Monohydrate Stability Through Doping **Lindsey Foote*, V. Nicely, J. Swift,** Georgetown University, USA
3:35	D-109	Effect of Mechanical Activation on the Underclay Component of Coal Refuse **Toluwalase Ogunsunlade*,** Pennsylvania State University, USA

New Developments in XRD & XRF Instrumentation   Salon C
Chairs: Andy Drews, Ford Motor Company, USA, adrews@ford.com
Tim Fawcett, ICDD, USA, dxcfawcett@outlook.com

1:00	S-6	"PhaseGuard" – Reliable QPA False Positive Filtering **Thomas Degen*, M. Sadki, M. Gateshki, S. Speakman,** Malvern Panalytical B.V., Netherlands
1:15	S-84	Software Controlled Alignment of a STOE STADI P Diffractometer **Thomas Hartmann*,** Stoe & Cie GmbH, Germany
1:30	S-20	Revolutionizing Grazing Incidence XRD: A Novel Soller-Slit-Free Approach for Seamless Mode Switching **Ekaterina Vinogradova*, K. Saito, H. Konaka,** Rigaku Americas, USA

1:45	S-144	Bringing Synchrotron-Level GIXS to the Lab: Structural Analysis of Ultrathin Films and 2D Materials **Arturas Vailionis*,** Stanford University, USA
2:00	S-55	A New Generation of HPC Detectors with Excellent Energy Resolution and Superior Count Rate Performance **Marcus Müller*, L. Wagner,** DECTRIS Ltd., Switzerland
2:15	S-101	MOXTEK's Developments in Compact X-ray Sources and Silicon Drift Detectors **Sterling Cornaby*,** Moxtek Inc, USA
2:30	S-94	Latest Generation of Silicon Drift Detectors and Readout Electronics **Dominik Steiner*, S. Pahlke, C. Langer, J. Knobloch,** KETEK GmbH, Germany
2:45	S-49	New High Resolution Silicon Drift Detector Systems Covering a Large Solid Angle **Dieter Michael Schlosser*, M. Kopetzki, M. Bornschlegl, A. Bechteler, K. von Mirbach, T. Comellato, N. Sharif, S. Aschauer, A. Niculae, H. Soltau,** PNDetector GmbH, Germany
3:00	S-69	Introducing EDAX Orbis II: Next Generation Micro-XRF Spectrometer for Precise and Efficient Elemental Analysis **Shangshang Mu*, G. Weppelman, S. Coyle, E. James, J. Wilbrink, C. Booth,** Gatan, USA
3:15		Break
3:30	S-125	Invited - A Simulation-Guided Multi-Scale High-Energy X-ray Microscopy Framework at the Advanced Photon Source **Seunghee Oh*, J.S. Park, I. Riyad, X. Zhang, T. Guruswamy, S. Hruszkewycz, S. Veseli, H. Sharma, M. Messner,** Argonne National Laboratory, USA
3:50	S-28	Introducing the First Bench-Top Ultra-SAXS Instrument: A New Era in Particle Size Analysis **Ekaterina Vinogradova*,** Rigaku Americas, USA
4:05	S-60	Revolutionizing XRF Analysis: Cutting-Edge Technology Enhances Precision and Expands Applications **Julia Sedlmair*,** Bruker, USA
4:20	S-93	The New Katanax X-100 Compact Fluxer, When Size Really Matters **Jean-Christophe Tremblay-Cantin*,** Environmental Express / Katanax, Canada
4:35	S-103	Advancements in Multi-Element Silicon Drift Detectors for High-Throughput XRF Applications **Andrew Jarrett*, M. Zhang, J. Wang, E. Tikhomirov, T. Yutaka,** Hitachi High Tech America, USA
4:50	S-159	Sigray AttoMap-310™: A Next-Generation Vacuum MicroXRF System for Synchrotron-like Performance in the Laboratory **Michael Lun*, F. Su, S. Pauker, B. Stripe, S. Lewis, W. Yun,** Sigray, Inc., USA

Industrial Applications and Quantitative Analysis of XRF

Strathmore A & B
(lower level)

Chair: Poulami Dutta, Dow Chemical Company, USA, pdutta1@dow.com

1:30	F-68	Invited – A Robust Ten-element XRF Calibration – How Far Can We Push Fundamental Parameters Approach? **Ying Shi*, C. Brew, A. Hernandez, S. Hwan Park, A. Hassan, J. Gonzalez, S. Miller,** Materials Discovery Research Institute - Underwriters Laboratories, USA
2:00	F-23	X-ray Fluorescence Standard Addition Method by Spiked Binder Substitution **Glenn Williams*, T. Nguyen,** VPrep Corp, USA
2:20	F-142	Joint X-ray Characterization of Polymeric and Composite Materials **Nathan Henderson*, J. Sedlmair, T. Hill, B. Reese,** Bruker, USA
2:40	F-110	Activated Carbon Assay With pXRF, EDX and WDXRF for Gold, Silver as Process Method **Alexander Seyfarth*,** SGS North America & Colorado School of Mines, USA **K. Gerber,** SGS South Africa, South Africa
3:00		Break
3:30	F-50	Invited - Evaluation of the Bruker S2 PUMA XRF for Analyzing Air Filters in the Chemical Speciation Network **Jiayuan Wang*, N. Spada, J. Giacomo, N. Hyslop,** University of California, USA
4:00	F-13	A Multivariate Approach to Quantify Pt Loading Using X-ray Fluorescence Spectroscopy for Fuel Cell Applications **Sergey Mamedov*,** HORIBA Instruments Incorporated, USA

Mining, Recycling, and Sustainable Materials   Salon A
Chairs: Kouichi Tsuji, Osaka Metropolitan University, Japan, k-tsuji@omu.ac.jp
Brian Patterson, Los Alamos National Laboratory, USA, bpatterson@lanl.gov

8:30	S-36	Invited - X-ray Fluorescence Analysis of Lithium-Ion Battery Black Mass **Hikari Takahara*,** Rigaku Corporation, Japan
9:00	S-38	Invited - Development and Applications of Non-Destructive Elemental Analysis Using Muon-Induced X-ray Emission (MIXE) **Akira Sato*,** Osaka University, Japan
9:30	S-114	X-ray Diffraction and Elemental Analysis of Mineral Materials by Using Energy-Dispersive X-ray Detector and Capillary Optics **Kouichi Tsuji*, N. Taniguchi*, T. Nishiyama,** Osaka Metropolitan University, Japan
9:50	S-66	A Proposed Combined Rietveld/Direct Derivation Approach to QPA of Complex Industrial Materials **Jessica Lyza*,** Alfred University, USA **T. Fawcett,** ICDD, USA
10:10		Break
10:30	S-62	Invited - In situ Damage and Deformation of Allende Meteorite and Tuff Materials during Synchrotron based High-Speed 3D Tomography **Brian Patterson*, T. Quintana, M. McCann, L. Goodwin, D. Hooks, G. Kidman, E. Swanson, P. Burnley, G. Gray, C. Welch, N. Cordes,** Los Alamos National Laboratory, USA **M. Drakopoulos,** Brookhaven National Laboratory, USA
11:00	S-24	Characterising and Predicting the Flotability of Gangue Minerals from X-ray Diffraction Patterns: A Case Study of Talc **Daniel Dodoo*, S. Usher, P.J. Scales, A.D. Stickland,** The University of Melbourne & ARC Centre of Excellence for Eco-Efficient Beneficiation of Minerals, Australia **N.A.S. Webster,** CSIRO Mineral Resources & ARC Centre of Excellence for Eco-Efficient Beneficiation of Minerals, Australia **L. Forbes,** The University of Queensland & ARC Centre of Excellence for Eco-Efficient Beneficiation of Minerals, Australia **M. Glenn, N. Owen,** CSIRO Mineral Resources, Australia **J.R. Black,** The University of Melbourne, Australia
11:20	S-12	Arrays of Highly Flexible Coated Hollow Capillaries for X-ray Radiation **Joern Wochnowski*,** Technische Hochschule Luebeck, Germany **Y. Tanaka,** RIKEN SPring-8 Center, Japan
11:40	S-126	X-ray Fluorescence Analysis of Upper Cretaceous Sandstones from the Northern and Southern Bida sub-Basins, Northcentral Nigeria: Insights into Depositional Settings and Paleo-Weathering Trends **Suraju Adepoju*,** Kwara State University, Nigeria **O. Ojo, A. Awe,** Federal University, Nigeria **B. Sreenivas,** Council of Scientific and Industrial Research–National Geophysical Research Institute, India

XRD Methods for Multi-Phase Identification – Part 1   Salon B
Chair: Tim Fawcett, ICDD, USA, dxcfawcett@outlook.com

9:00	D-85	Invited - Difficult Pharmaceutical Crystal Structures **James Kaduk*,** North Central College, USA
9:30	D-8	Template-Driven Excellence: Enhancing Industrial Applications of XRD **Akhilesh Tripathi*,** Rigaku Americas, A Division of Rigaku Americas Holding, USA
9:50	D-18	Prediction of the Phase Behavior of Diblock Copolymers Using SCFT Combined with SAXS Key Experiments **Thore Pohl*, M. Fischlschweiger,** Clausthal University of Technology, Germany
10:10		Break
10:40	D-87	Invited - The Secrets of the Sand II - Mineralogy of Coastal Sands and Dunes at Indiana Dunes National Park **Tim Fawcett*, M. Rost,** ICDD, USA **J. Lyza,** Alfred University, USA
11:10	D-46	Mineralogical and Elemental Analysis of Southeast Asian Clay Rare Earth Element Ores using XRD and XRF **Christopher Shaffer*,** Thermo Fisher Scientific, USA **S. Welzmiller,** Thermo Fisher Scientific, Denmark **A. Sen,** Thermo Fisher Scientific, India
11:30	D-22	The First 2D High-Energy Resolution Detector for Bench-Top XRD: Suppressing K-Beta Diffraction and XRF Background **Akhilesh Tripathi*, A. Krishna Battu, K. Saito,** Rigaku Americas Holding, Inc., USA

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Trace Environmental including TXRF

Salon C

Chair: Martina Schmeling, Loyola University Chicago, USA, mschmel@luc.edu

9:00	F-21	Invited – Portable X-ray Fluorescence as a Tool for the Analysis of Osteological Remains **Letizia Bonizzoni*,** University of Milan, Italy
9:30	F-59	Invited – Total Reflection X-ray Fluorescence: A Green Approach for Multi-Element Analysis of Biological Fluids **Jasna Jablan*,** University of Zagreb, Croatia
10:00	F-99	Analytical Characterization of the Benchtop TXRF Spectrometric Analysis of Two Se Metabolites in Simulated Human Urine **Jorge Luis Rodriguez Alejandre*, I.E. Serrato Mireles, N. Dasgupta-Schubert,** Universidad Michoacana de San Nicolas de Hidalgo (University of Michoacan), Mexico
10:20		Break
10:50	F-96	Honeybees (Apis Mellifera) and Hive Products as Biomonitoring on Superfund Sites in Denver **Nicole Pember*, C. Briles,** University of Colorado, Denver, USA **D. Siples,** Malvern Panalytical, USA
11:10	F-123	X-ray Fluorescence-based Studies of Particulate Matter on Filter **Diane Eichert*,** Elettra - Sincrotrone Trieste, Italy **L. Borgese,** University of Brescia, Italy
11:30	F-100	Studies of Heavy Metal Uptake and Plant Response to Iron and Cadmium Stress **Olga Antipova*, D. Gozstola, W. Cha,** Argonne National Laboratory, USA **M. Antipov, N. Dille, W. Wang, A. Bukowski, J. Parves,** Naperville Central High School, USA **E. Horan,** Lemont High School, USA **O. Ponomarenko,** University of Saskatoon, Canada

Oral Sessions
Thursday PM, 7 August

*Signifies presenting author

Machine Learning Techniques in X-ray Analysis

Salon A

Chairs: Mathew Cherukara, Argonne National Laboratory, USA, mcherukara@anl.gov
Apurva Mehta, SLAC, SSRL, USA, mehta@slac.stanford.edu

2:00	S-135	Invited - The Future of Autonomous Science **Kevin Yager*,** Brookhaven National Laboratory, USA
2:30	S-112	Adaptive Scanning for X-ray Absorption Spectroscopy Using Artificial Intelligence **Ming Du*, M. Wolfman, C. Sun, S. Kelly, M. Cherukara,** Argonne National Laboratory, USA
2:50	S-16	Autonomous Reduction and Analysis of 2D Diffraction and Scattering Data **Anna Merritt*, W. Xu, O. Borkiewicz, M. Chu, N. Schwarz, B. Toby, J. Weng,** Argonne National Laboratory, USA
3:10		Break
3:40	S-108	Invited - DiffractGPT: Atomic Structure Determination from X-ray Diffraction Patterns Using a Generative Pretrained Transformer **Kamal Choudhary*,** National Institute of Standards and Technology, USA
4:10	S-33	Application of Deep Neural Network to X-ray Thin Film Analysis **Toshihide Shibasaki*, A. Himeda, S. Kazlouski,** Rigaku Corporation, Japan
4:30	S-120	Machine Learning Model for Improved Spatial Resolution and Peak Detection in High-Energy Diffraction Microscopy **Dishant Beniwal*, H. Sharma, J.-S. Park, P. Kenesei, A. Miceli,** Argonne National Laboratory, USA
4:50	S-147	Near-field Holography Image Denoising using Dilated Convolutional Neural Networks **Vahid Rahmani*, J. Hagemann,** Deutsches Elektronen-Synchrotron DESY, Germany **C.G. Schroer,** Deutsches Elektronen-Synchrotron DESY & Universität Hamburg UHH & Helmholtz Imaging, Germany

XRD Methods for Multi-Phase Identification – Part 2   Salon B
Chair: Tim Fawcett, ICDD, USA, dxcfawcett@outlook.com

2:00	D-67	Invited - From Composite Materials to Industrial By-Product: Methodological Considerations for XRD Used in the Identification and Quantification of Complex Multi-Phase Systems **Jessica Lyza*,** Alfred University, USA **T. Fawcett,** ICDD, USA
2:30	D-7	Mineralogical and Maturity Analysis of Glauconite Sands from the U.S. Atlantic Coastal Plain: Implications for Offshore Wind Foundation Design **Md Ashikuzzaman*, W. Sun, Z. Westgate, D. DeGroot, G. Zhang,** University of Massachusetts Amherst, USA
2:50	D-141	XRD Analysis of Interstratified Illite/Smectite Clays as a Geothermometer at the Borinquen Geothermal Field **Edward Hakanson*,** Instituto Costarricense de Electricidad, Costa Rica
3:10		Break
3:40	D-146	Revealing the Role of Ferroelastic Domains in Ferroelectric Phase Transitions via High-Resolution X-ray Diffraction **Semën Gorfman*,** Tel Aviv University, Israel
4:00	D-15	New Hardware Developments and Applications in Non-Ambient and Operando XRD **Marius Kremer*, T. Faske, B. Puhr, J.-L. Brousseau, P. Gosavi,** Anton Paar GmbH, Austria

Structure Elucidation via PDF   Salon C
Chair: Yuanpeng Zhang, Oak Ridge National Laboratory, USA, zhangy3@ornl.gov

1:30	D-132	Invited – RMCProfile: Local Structure of Disordered Crystalline Materials **Matt Tucker*,** Oak Ridge National Laboratory, USA
2:00	D-128	Invited - Local Structures in Crystalline Oxides and Molten Salts **Xin Wang*, Y. Zhang, J. Liu, P. Halstenberg, T. Wang, Z. Yang, S. Mahurin,** Oak Ridge National Laboratory, USA **Q. Wang, E. Kim,** University of Tennessee, USA **K. Page, S. Dai,** Oak Ridge National Laboratory & University of Tennessee, USA
2:30	D-116	Invited – The Mechanism of Fluorine Doping for the Enhanced Lithium Storage Behavior in Cation-Disordered Cathode Oxide **Yuanpeng Zhang*,** ORNL, USA
3:00		Break
3:30	D-97	Determination of Site Occupancy, Chemical and Charge Ordering in Spinel "High Entropy" Oxides **Sikhumbuzo Masina*, G. Nkala, M. Kiefer, K. Stone,** SLAC National Accelerator Lab/SSRL, USA
3:50	D-148	Solving Crystal Structure Using Powder XRD **Yongsheng Zhao*, H.S. Muddana,** OpenEye, Cadence Molecular Sciences, USA
4:10	D-32	Precise Structural Analysis Using a Tilted Two-Axis Rotation System with Powder Diffractometers at BL02B2 and BL13XU of SPring-8 **Shintaro Kobayashi*, S. Kawaguchi,** Japan Synchrotron Radiation Research Institute, Japan

Spatially-Resolved Benchtop Micro-XRF

Chairs: Tina Hill, Bruker, USA, tina.hill@bruker.com
Evan O'Neal, Amentum, NASA JSC, USA, evan.w.o'neal@nasa.gov

Strathmore A & B
(lower level)

Time	ID	
1:00	F-78	Invited - Implementation of Micro X-ray Fluorescence Spectroscopy for Astromaterial Curation and Research **Evan O'Neal*, S. Eckley,** Amentum, NASA JSC, USA **R. Zeigler,** NASA JSC, USA
1:30	F-17	Invited - Application of Micro-XRF: Key Stages in Novel Dry Electrode Production **Danielle DeCapito*,** Dragonfly Energy Corp., USA
2:00	F-61	Invited - Development and Application of Nano-Pellets as Reference Materials for Micro-XRF **Simon Nordstad*,** myStandards GmbH, Germany **R. Tagle, F. Reinhardt,** Bruker Nano GmbH, Germany
2:30	F-40	Fundamental Parameter Quantification in Micro-XRF – The End of Standard-Based Quantification? **Falk Reinhardt*, R. Tagle, A. Menzies,** Bruker Nano Analytics, Germany
2:50	F-92	Applications of Benchtop Mapping XRF in Cultural Heritage Science **Cindy Connelly Ryan*,** Library of Congress Preservation Research and Testing Division, USA
3:10		Break
3:30	F-136	Demonstration of Micro-XRD/XRF Comparative Analysis on Geode Cross-Section Specimen **Dan Lowry*, N. Valdez, M. Rodriguez,** Sandia National Laboratories, USA
3:50	F-76	Optimizing Nuclear Materials Characterization Using Micro-X-ray Fluorescence, Scanning Electron Microscopy, and Optical Microscopy in Tandem **Christopher Worley*, N. DiBlasi, A. Olson, L. Tandon,** Los Alamos National Laboratory, USA
4:10	F-88	Invited - Basics and Applications of X-ray Fluorescence Imaging (XFI) **Theresa Staufer*, F. Grüner,** University of Hamburg, Germany
4:40	F-122	Bromine Distribution in Horseshoe Crab (Limulus Polyphemus) Exoskeletons: Insights from Micro-XRF Analysis **Tina Hill*,** Bruker AXS, Inc., USA

Oral Sessions, Friday AM
8 August

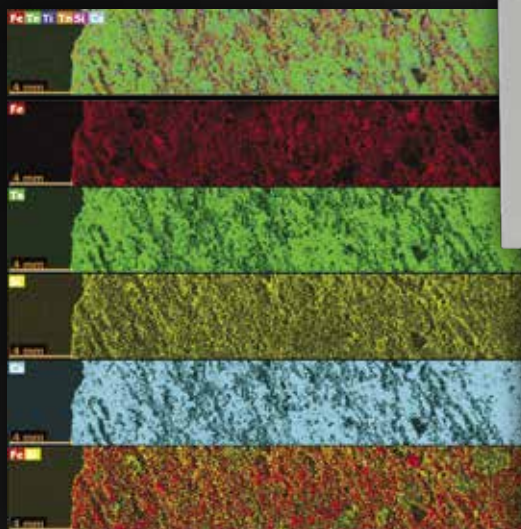*Signifies presenting author

Stress and Texture Analysis

Chair: Tom Watkins, Oak Ridge National Laboratory, USA, watkinstr@ornl.gov

Salon A

Time	ID	
8:30	D-74	Invited - The Surface Effect and XEC Model Fidelity in X-ray Stress Analysis **Thomas Gnaupel-Herold*, A. Creuziger,** National Institute of Standards and Technology, USA
9:00	D-121	Invited - XRD Stress Measurements from Multi-axial Deformation of 3rd Generation Advanced High Strength Steels **Adam Creuziger*,** National Institute of Standards and Technology & Colorado School of Mines, USA **M. Cox,** Colorado School of Mines & National Institute of Standards and Technology, USA **T. Gnaupel-Herold, M. Iadicola,** National Institute of Standards and Technology, USA **K. Findley,** Colorado School of Mines, USA
9:30	D-140	Invited – Strains in Wire Arc Additive Manufacturing; Insights from Operando Neutron Scattering **Chris Fancher*, K. An, J. Haley, T. Feldhausen, Y. Lee, D. Yu, R. Kannan, A. Plotkowski,** ORNL, USA **K. Saleeby,** Ga Tech, USA
10:00		Break
10:30	D-143	Invited – Deciphering the Toughening Mechanism in an in-situ Eutectic Lamellar Composite by *in-situ* Neutron Diffraction **Dunji Yu*, Y. Chen, K. An,** Oak Ridge National Laboratory, USA
11:00	D-130	Strain/Stress Imaging Using μ-Laue XRD Microscopy at the Canadian Light Source **Renfei Feng*,** Canadian Light Source, Canada
11:20	D-98	Characterizing Nanoscale Thin-film Residual Stresses for Stress Mitigation in Next Generation X-ray Optics **Taylor Wood*, J. McCoy, F. Gris~~~~,** The Pennsylvania State University, USA ~~WITHDRAWN~~ **L. Smieska, A. Woll,** Cornell University, USA

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Non-ambient Measurements   Salon B
Chair: Andy Drews, Ford Motor Company, USA, adrews@ford.com

8:30	D-106	Invited - The High-Pressure BioSANS Platform at the NIST Center for Neutron Research **Susana Teixeira*,** University of Delaware & National Institute of Standards and Technology, USA
9:00	D-139	Invited - In situ Oxidation of the Nickel-Based Superalloy Diamalloy 1005 **Benjamin S. Hulbert*, J. Stokes,** NASA Glenn Research Center, USA
9:30	D-107	Using Co-Refinement of X-ray and Neutron Diffraction to Solve Modulation in $CuVP_2S_6$ Structure **Akil Mondie*,** University of Maryland, USA
9:50	D-73	Integrated X-ray Absorption and Scattering Measurements for in situ Catalysis **Evan Jahrman*, D. Raciti, F. Zhang, B. Ravel,** National Institute of Standards and Technology, USA
10:10		Break
10:30	D-129	Investigating the Synthesis Pathway of a Disordered Rock Salt Cathode Material Using Synchrotron X-ray Characterization **Kevin Stone*, Z. Liang, O. Marques, O. Paredes, S. Masina, C. Cao, D. Sokaras, J. Nelson Weker,** SLAC, USA
	D-133	Pair Distribution Function Analysis of Metal Organic Frameworks under in situ Heat and Humidity Conditions **Scott Speakman*,** Malvern Panalytical, USA ~~WITHDRAWN~~
10:50	D-131	Simultaneous In-Plane and Out-of-Plane Copper Mobility in 2D Antiferroelectric vdW $CuSb_{1-x}Bi_xP_2Se_6$ **Ryan Stadel*, P. Zavalij, C. Stephen, E. Rodriguez,** University of Maryland College Park, USA **P. Yan, M. Layegh, J. Bennet,** University of Maryland Baltimore County, USA

General XRF   Salon C
Chair: Ursula Fittschen, TU Clausthal, Germany, ursula.fittschen@tu-clausthal.de

8:30	F-118	Invited - Operando Chemical Analysis of Batteries by Quantitative X-ray Spectrometry **Burkhard Beckhoff*,** Physikalisch-Technische Bundesanstalt, Germany
9:00	F-83	Invited – Development of a Multi-Modal Laboratory Setup for Performance Mapping of Semiconductor Devices **Sven Hampel*, S. Patjens, J. Luis, E. Ametova, M. Stuckelberger,** Deutsches Elektronen-Synchrotron DESY, Germany
9:30	F-51	EDXRF, a Means of Rapid Chemical and Physiochemical Characterization of Peat-Alternative Growth Media and Raw Materials **Thulani De Silva*,** Teagasc, Ashtown Food Research Centre & Trinity College Dublin, Ireland **M. Croffie, K. Daly,** Teagasc, Johnstown Castle, Ireland **M. Gaffney, E. Corbett,** Teagasc, Ashtown Food Research Centre, Ireland **M. Stock,** Trinity College Dublin, Ireland
9:50	F-75	Enhancing Micro-XRF Analysis with a Motorized Turret and Straight-down X-ray Geometry **Shangshang Mu*, G. Weppelman, S. Coyle, C. Booth,** Gatan, USA
10:10		Break
10:30	F-71	Invited - GIMOXS: A Versatile X-ray Spectrometer for TXRF (C to U) and Grazing Incidence XRF for Nanomaterial Characterization in the Lab **Dieter Ingerle*, P. Wobrauschek, C. Streli,** TU Wien X-Ray Center, Austria **F. Meirer, K. Siebers,** Utrecht University, Netherlands
11:00	F-90	Integrated Micro-CL and XRF-CL for Studies of Planar Samples **Pei-Tuz Lee*, O. Antipova, V. Nikitin, F. Marin, B. Lai, Y. Jiang, J. Klug, E. Maxey, P. Shevchenko, P.-T. Lee,** Argonne National Laboratory, USA **S. Stock,** Northwestern University, USA
11:20	F-70	Maximizing Sensitivity of Energy Dispersive X-ray Fluorescence Spectroscopy to Compete with Plasma Based Elemental Spectroscopies **Joel Langford*, H. Chen,** Shimadzu Scientific Instruments, USA
11:40	F-153	The Mobility Paradox: Tracing Calcium Foliar Absorption and Transport in Tomato Plants **Eduardo Santos*, G. Montanha, H. da Silva, H. de Carvalho,** University of São Paulo, Brazil

Bethesda North Marriott Hotel & Conference Center

MAIN LEVEL

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TO GARAGE

ESCALATORS

FOYER

GRAND BALLROOM

A

B

C

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E

F

G

H

FOYER

GRAND FOYER

STAIRS

TERRACE

LOWER LEVEL

STAIRS

EXIT

FOYER

ESCALATORS

REGISTRATION DESK

STRATHMORE

A   B

GREAT FALLS

MIDDLEBROOK

TIMBERLAWN

LINDEN OAK

BROOKSIDE

A   B

SENECA BOARD ROOM

OAKLEY

WHITE OAK A

BROOKSIDE C

GLEN ECHO

WHITE OAK FOYER

WHITE OAK B

BROOKSIDE FOYER

FOREST GLEN

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OFFICES

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LOUNGE

STAIRS
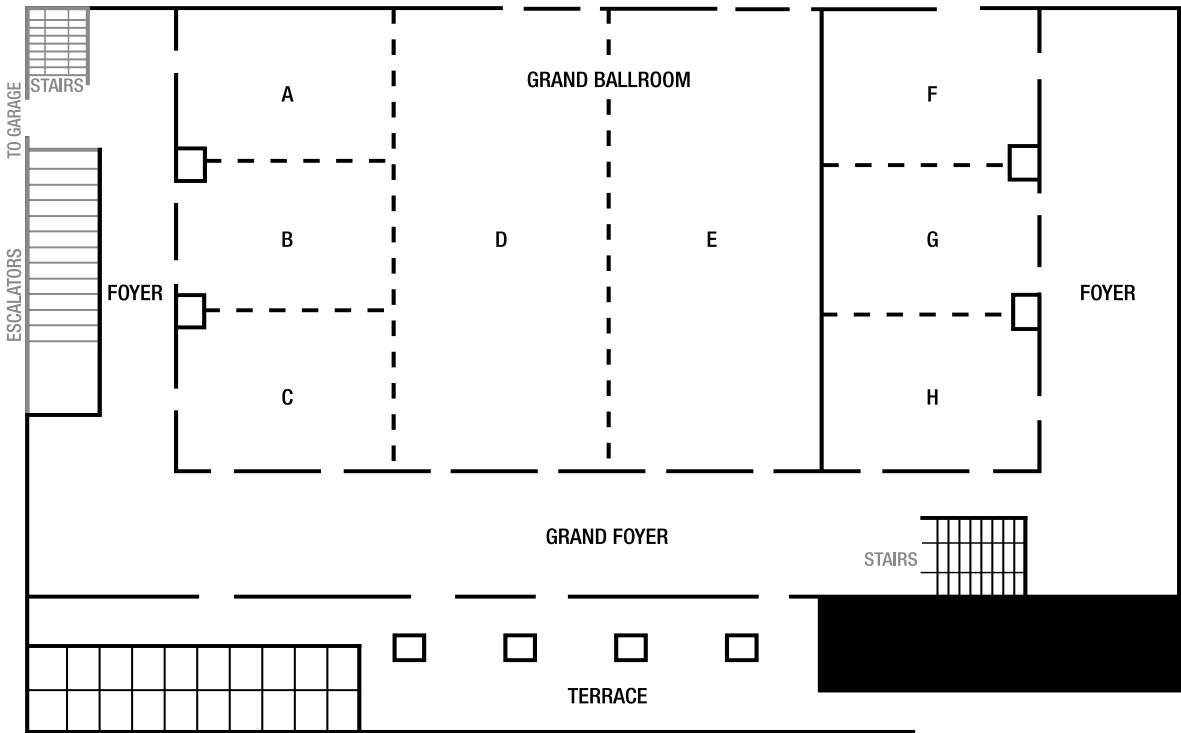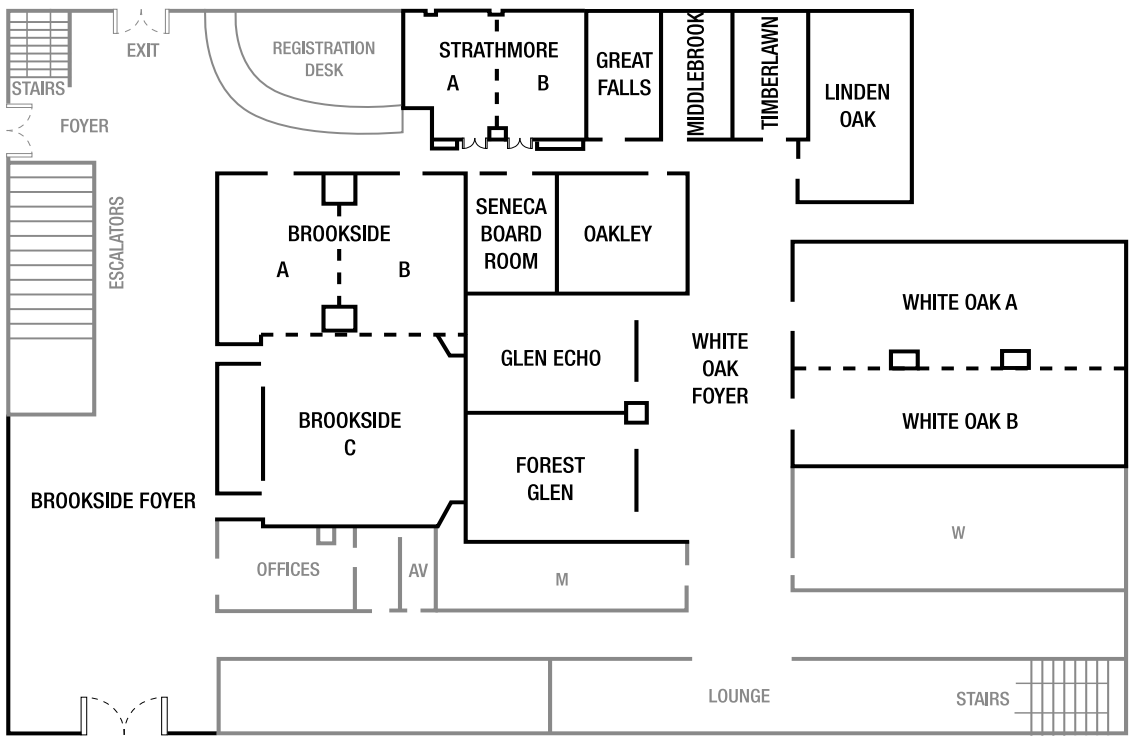
2025 Denver X-ray Conference | Program-at-a-Glance | Monday – Friday | 4 – 8 August

Color Legend:

Special Topics	XRD	XRF	Plenary	Exhibit Hours	Evening

Meeting Rooms:

Salon A	Salon B	Salon C	Strathmore A & B
Monday Morning Workshops 9:00am – 12:00pm			
Data Processing of Total Scattering and How to Avoid Pitfalls Along the Way (**Zhang**)	Intermediate to Advanced XRD – Part 1 (**Blanton/Misture/Rodriguez**)	Basic XRF (**Drews/Wobrauschek**)	
Monday Afternoon Workshops 1:30pm – 4:30pm			
Environmental Analysis (**Schmeling/Eichert**)	Intermediate to Advanced XRD – Part 2 (**Blanton/Misture/Rodriguez**)	Micro XRF & Trace Analysis (**Tsuji/Wobrauschek**)	Quantitative Analysis of XRF (**Quevy**)
**Monday Exhibit Hours: 4:30pm – 7:00pm	Grand Ballroom**			
**Monday Evening XRD Poster Session & Reception	5:00pm – 7:00pm (Watkins/Cakmak)	Grand Ballroom**			
Tuesday Morning Workshops 9:00am – 12:00pm			
Methods for Complex Multi-Phase Samples (**Fawcett/Hillier**)	Mapping Analysis – Part 1 (**Drews**)	Advancing Science through Data Informatics: Publishing, Validation, and Applications (**Ratcliff**)	Spectra Processing Using PyMCA (**Schmeling/Eichert**)
Tuesday Afternoon Workshops 1:30pm – 4:30pm			
Raman Spectroscopy for Mineral Identification (**Bartholomew/Post**)	Mapping Analysis – Part 2 (**Drews**)	Benchtop and Handheld Applications (**Dutta/Seyfarth**)	
**Tuesday Exhibit Hours: 10:00am – 7:00pm	Grand Ballroom**			
**Tuesday Evening XRF Poster Session & Reception	5:00pm – 7:00pm (Schmeling/Eichert)	Grand Ballroom**			
Wednesday Morning Plenary Session			
Plenary Session: From Waste to Resource: Nanoplastics, Circular Chemistry, and Microanalysis (**Wobrauschek**)			
Wednesday Afternoon Sessions			
	Early Career Researchers: Spotlight on the Next Generation (**Gosling**)	New Developments in XRD & XRF Instrumentation (**Fawcett/Drews**)	Industrial Applications and Quantitative Analysis of XRF (**Dutta**)
**Wednesday Exhibit Hours: 12:00pm – 6:00pm	Grand Ballroom**			
**Wednesday Evening Vendor Sponsored Happy Hour	5:00pm – 6:00pm	Grand Ballroom**			
Thursday Morning Sessions			
Mining, Recycling, and Sustainable Materials (**Tsuji/Patterson**)	XRD Methods for Multi-Phase Identification – Part 1 (**Fawcett**)	Trace Environmental including TXRF (**Schmeling**)	
Thursday Afternoon Sessions			
Machine Learning Techniques in X-ray Analysis (**Mehta/Cherukara**)	XRD Methods for Multi-Phase Identification – Part 2 (**Fawcett**)	Structure Elucidation via PDF (**Zhang**)	Spatially-Resolved Benchtop Micro-XRF (**Hill/O'Neal**)
**Thursday Exhibit Hours: 10:00am – 1:00pm	Grand Ballroom**			
Friday Morning Sessions			
Stress and Texture Analysis (**Watkins**)	Non-ambient Measurements (**Drews**)	General XRF (**Fittschen**)	

Session times vary. Please consult Program Book.
www.dxcicdd.com