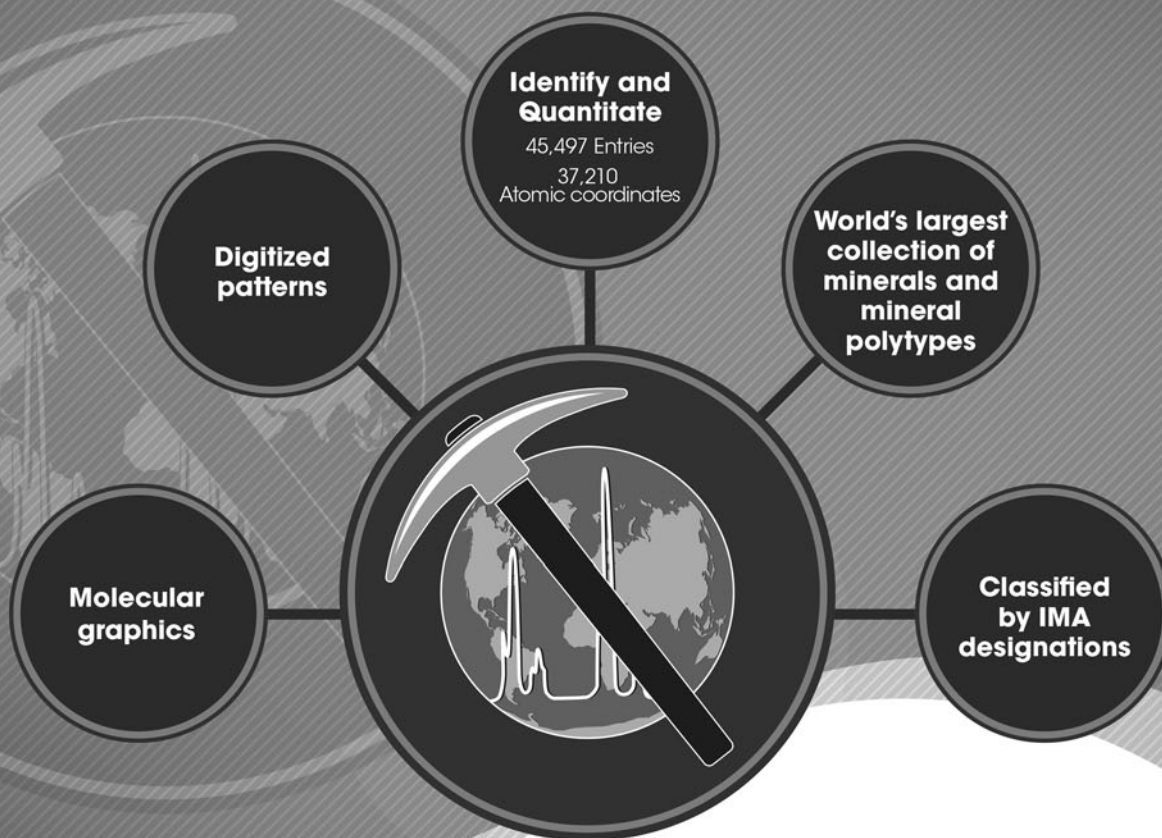


INTERNATIONAL CENTRE FOR DIFFRACTION DATA

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ICDD databases are the only crystallographic databases in the world with quality marks and quality review processes that are ISO certified.

PDF-4/Minerals



Standardized Data

More Coverage

All Data Sets Evaluated For Quality

Reviewed, Edited and Corrected Prior To Publication

Targeted For Material Identification and Characterization

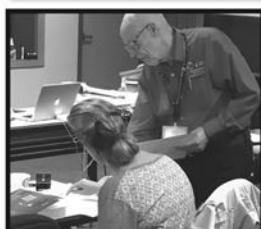
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LET OUR TEAM OF EXPERTS HELP YOU TAKE YOUR SKILLS TO THE NEXT LEVEL!

**Practical X-ray Fluorescence:****30 April – 4 May 2018**

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.

Fundamentals of X-ray Powder Diffraction:**4 – 8 June 2018**

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

The clinic covers instrumentation, specimen preparation, data acquisition and qualitative phase analysis through live demonstrations. It also covers hands-on use of personal computers for demonstration of 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.

Advanced Methods in X-ray Powder Diffraction:**11 – 15 June 2018**

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 collection and interpretation, both for qualitative and quantitative phase analysis.

The advanced clinic covers factors affecting d-spacings of crystals, as well as factors affecting diffraction-line intensities; structure-sensitive properties (atomic scattering and structure factors), polarization effects, and multiplicity. Additionally, the clinic covers specimen-sensitive effects (orientation, particle size), measurement-sensitive effects (use of peak heights and peak areas), and choice of scanning conditions will also be addressed.

Rietveld Refinement & Indexing Workshop:**Rietveld Refinement & Indexing Workshop I & II: 24 – 28 September 2018****Basic (I) Workshop: 24 – 26 September 2018*****Advanced (II) Workshop: 26 – 28 September 2018**

Powder pattern indexing and Rietveld structural refinement techniques are complementary and are often used to completely describe 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 workshop introduces the theory and formalisms of various indexing methods and structural refinement techniques along with quantitative analysis. One unique aspect of this workshop is the extensive use of computer laboratory problem solving and exercises that teach method development in a hands-on environment.

Take the three-day basic workshop, the three-day advanced workshop or attend both for a full week of hands-on training.

*See the ICDD web site for prerequisites for the advanced Rietveld course.

Register today at WWW.ICDD.COM/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**Eileen Jennings, Education Coordinator****Tel:** 610.325.9814 **Fax:** 610.325.9823**Email:** clinics@icdd.com**Location**

ICDD Headquarters, 12 Campus Boulevard
Newtown Square, Pennsylvania 19073-3273 U.S.A.

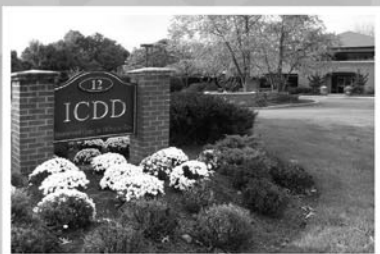


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ICDD 11/17

Tuition Waiver Opportunities for ICDD XRF & XRD Educational Events

2017/2018



Educational Events

In continuing its commitment to education throughout the scientific community, the International Centre for Diffraction Data sponsors clinics and workshops in X-ray powder diffractometry and X-ray fluorescence spectrometry. These courses offer training in both theoretical and practical applications.

To promote these clinics and workshops, particularly in the academic sector, the ICDD offers a limited number of tuition waivers. The XRF, XRD I & II, and Rietveld Refinement tuition waivers are named in honor of world-renown scientists Dr. Eugene P. Bertin, Dr. Ron Jenkins, Dr. Deane K. Smith and William Frank McClune.

Who Should Apply

Faculty members and graduate students are encouraged to apply. If you are currently developing a program in X-ray fluorescence (XRF), X-ray powder diffraction (XRD), or Rietveld Analysis, or are interested in incorporating the topic into an established course, a tuition waiver can provide you the opportunity to learn the principles and practices of this discipline from some of the experts in the field.

Restrictions

Tuition waivers cover tuition only; travel and lodging are the responsibility of the attendee and are not included in the tuition waiver.

How to Apply

Submit a one-page written request stating your objectives in attending the clinic or workshop, and/or how you will incorporate the respective topic into the curriculum at your learning institute.

Tuition waiver applications must be accompanied by a clinic/workshop registration form and received at the ICDD by the application and registration deadline. All applications will be reviewed on a competitive basis, and recipients will be notified no later than four weeks prior to the start of the clinic/workshop session.

2017/2018 Applicable Events

Rietveld Refinement & Indexing 1 & 2

25-29 September 2017

Application Deadline: 14 August 2017

Practical XRF

30 April - 4 May 2018

Application Deadline: 18 March 2018

Fundamentals of XRD

4-8 June 2018

Application Deadline: 22 April 2018

Advanced Methods in XRD

11-15 June 2018

Application Deadline: 22 April 2018

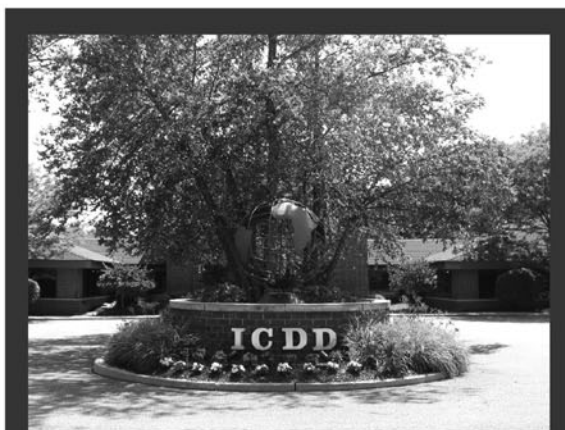
Please return a completed [registration form](#) and your tuition waiver request to:

ICDD Clinics
12 Campus Boulevard,
Newtown Square, PA 19073

Attention: Eileen Jennings
Email: clinics@icdd.com
www.icdd.com/education

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ICDD's Vision

The International Centre for Diffraction Data will continue to develop tools and support the education required for materials analyses of tomorrow.

ICDD's Mission

The International Centre for Diffraction Data will continue to be the world center for quality diffraction and related data to meet the needs of the technical community. ICDD promotes the application of materials characterization methods in science and technology by providing forums for the exchange of ideas and information.

ICDD Products:

- PDF-2
- PDF-4+
- WebPDF-4+
- PDF-4/Minerals
- PDF-4/Organics
- Sleve/Sleve+

Education:

- Clinics:
 - XRD
 - XRF
- Specialized Workshops

Conferences:

- Denver X-ray Conference (DXC)
- Pharmaceutical Powder X-ray Diffraction Symposium (PPXRD)

Publications:

- *Powder Diffraction*
- *Advances in X-ray Analysis*

Grant-in-Aid Program

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Online Resources

Visit our website at www.icdd.com

Our goal at ICDD is to help you solve your materials problems. We provide online publications, technical bulletins, tutorials, and videos. Many tutorials focus on capabilities of the database, but there are also general tutorials that describe methods used to analyze drugs, polymers, and minerals. The tutorial page has links to free download publications, as well as instructional videos. Our website also contains over 1,000 full publications for free download from *Advances in X-ray Analysis*. Our website, tutorial page, and publication pages are there to help you!

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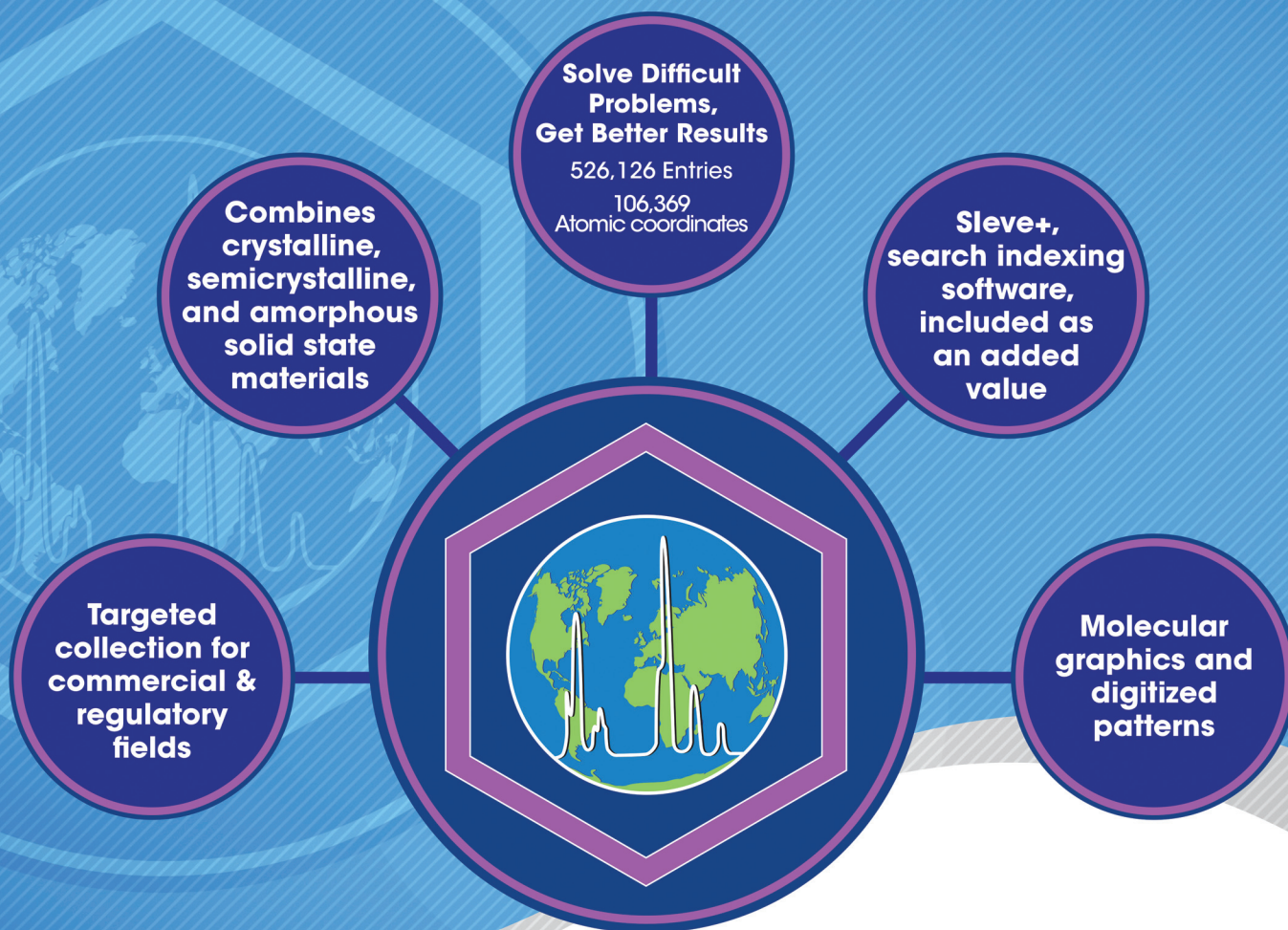
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