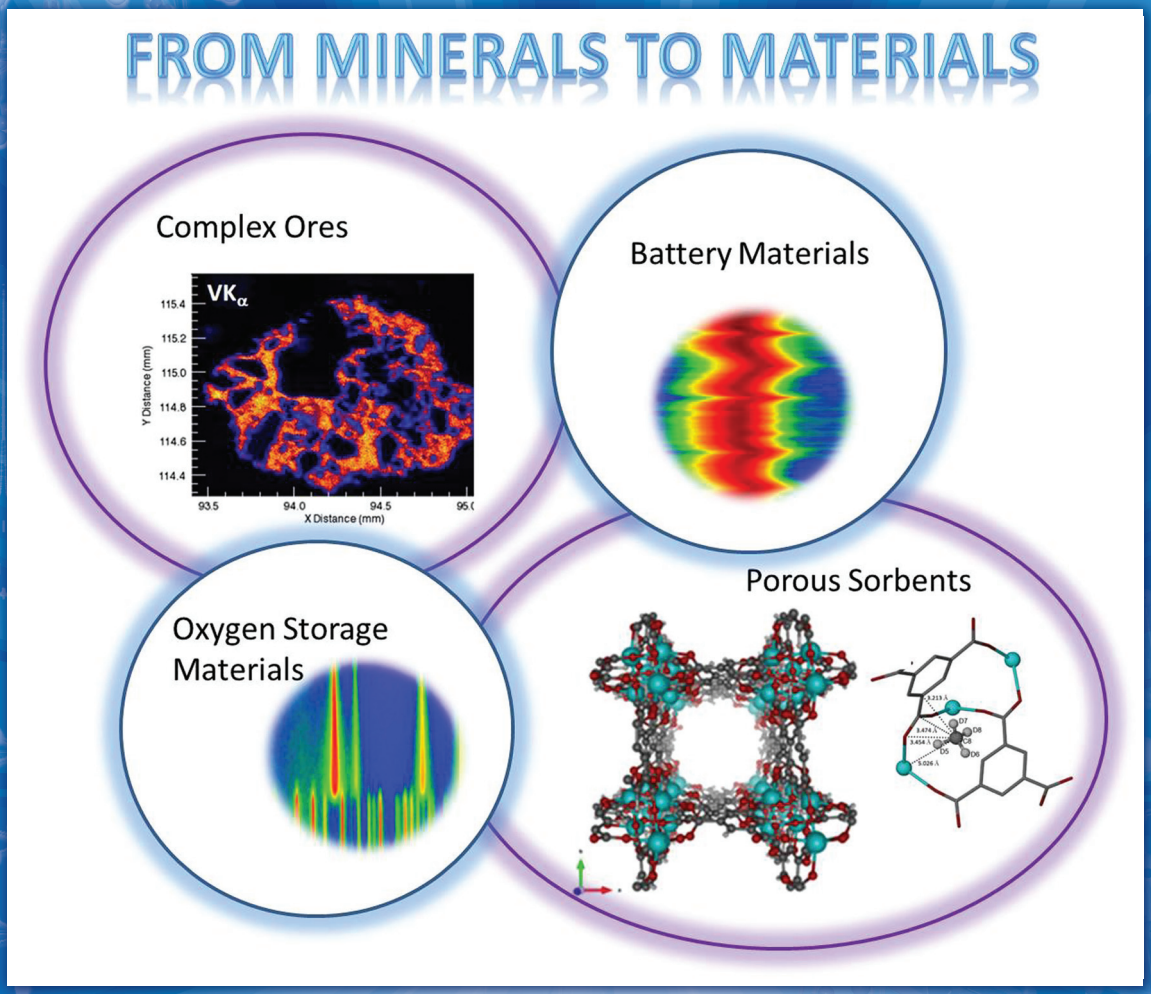
Powder Diffraction PDJ
Journal of Materials Characterization

Proceedings of the Australian X-Ray Analytical Association (AXAA) Conference held February 9–13, 2014



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

Practical X-ray Fluorescence: 27 April–1 May 2015

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. Submit your samples for analysis by the XRF experts. Selected results will be the basis for class discussion!

Fundamentals of X-ray Powder Diffraction: 1–5 June 2015

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. Hands-on use of personal computers for demonstration of the latest software; data mining with the PDF. The powder diffractometer: optical arrangement, factors affecting instrumental profile width, choice and function of divergence slit, detectors, X-ray optics, calibration and alignment.

*Advanced Methods in X-ray Powder Diffraction: 8–12 June 2015

For the experienced XRD scientist, this clinic offers enhanced analysis skills through intense problem solving, as well as an introduction to the Rietveld Method. Computer-based methods of data collection and interpretation, both for qualitative and quantitative phase analysis is also emphasized.

The advanced clinic covers factors affecting d-spacing of crystals: unit cell, crystal structure, and solid solutions, as well as factors affecting diffraction-line intensities: relative and absolute intensities, structure-sensitive properties (atomic scattering and structure factors), polarization effects, and multiplicity, specimen-sensitive effects (orientation, particle size), measurement-sensitive effects (use of peak heights and peak areas), and choice of scanning conditions.

*Rietveld Refinement & Indexing Workshops: Basic: 28–30 September 2015 / Advanced: 1–2 October 2015

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. 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 two-day advanced workshop or both together for a full week of hands-on training. The ICDD basic Rietveld workshop is a pre-requisite for attending the advanced workshop. A basic understanding of crystallography is also required.

Don't miss the opportunity to meet with our faculty, offering knowledge in a wide range of industries and applications. You'll meet seasoned professionals with experience in metals, microelectronics, thin films, indexing, polymers, organic chemistry and much more. Featuring live instruments for the XRF & XRD Clinics!

Register Today at WWW.ICDD.COM/EDUCATION

* See the ICDD web site for prerequisites for advanced courses.

FOR MORE INFORMATION CONTACT
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EDITORIAL

TECHNICAL ARTICLES

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Powder Diffraction is a journal of practical technique, publishing articles relating to the widest range of application—from materials analysis to epitactic growth of thin films and to the latest advances in software. Although practice will be emphasized, theory will not be neglected, especially as its discussion will relate to better understanding of technique.
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who contribute experimental powder diffraction patterns to the Powder Diffraction File

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- Publication of pattern(s), if accepted by the Editorial Department, in the Powder Diffraction File
- Receive calibration standards
- Purchase certain products at reduced prices
- Web-based access to the list of compounds in the ICDD master database—includes published patterns, as well as patterns still in the editorial process
- First-time grantees receive a complimentary one-year subscription to *Powder Diffraction*

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For over 50 years, ICDD has supported a well-developed program of grants to researchers around the world.

One of our main objectives is to expand the range of reference materials by producing and cataloging high-quality X-ray diffraction patterns in our internationally renowned database, the Powder Diffraction File. Thanks to the longevity of this program, these contributions account for approximately a quarter of the current experimental file. ICDD awards financial support to qualified investigators in the form of grants-in-aid on a competitive proposal basis. The duration of a grant is 12 months with two cycles per year. Cycle I begins 1 April and Cycle II begins 1 October.

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