

Short Courses and Workshops

JCPDS - International Centre for Diffraction Data

Short Course on Search/Match Methods

The JCPDS-International Centre for Diffraction Data will continue to offer three-day short courses on Search/Match methods at the Swarthmore, PA, headquarters of the International Centre and elsewhere (see attached schedule).

The courses, which are now in their 5th year, are intended to build proficiency of the user in the interpretation of experimental data, especially in the application of the information provided in the *Powder Diffraction File*. The courses should be useful to the novice as well as the experienced powder diffractionist, and all discussions start with the basic principles leading on to useful laboratory procedures. Workbooks are provided to all attendees and these contain a number of experimentally obtained X-ray diffraction data sets which are used as class exercises. During the workbook sessions, the classes are subdivided to match the needs and experience of the attendees.

The course will emphasize the nature and organization of the information in the *Powder Diffraction File* and retrieval and use of this information for interpreting experimentally collected diffraction data. The implications of the accuracy of measurement of d-spacings and intensities of experimental data with respect to use of the powder file will be discussed, as well as common instrumentation and specimen-induced errors. The use of both manual and computer search/match methods for phase identification will be practised through the use of workbooks. Applications of File data for further characterizing phases will be illustrated using several mineralogical problems and a special X-ray diffraction minerals workbook. Other types of materials may be studied including organic and forensic materials, depending upon the needs of the participants.

Course Schedule

- Day 1 Morning: Optimization of data collection
Evaluation of experimental data
Instrumental induced errors
Sample induced errors
- Day 1 Afternoon: Introduction to the Powder Diffraction File
Role of the JCPDS-ICDD
Alphabetic search procedures
The Hanawalt search/match procedure
- Day 2 Morning: The Fink search/match procedure
Classical powder diffraction problems
Phase identification
Analysis of polyphase materials
- Day 2 Afternoon: Computer techniques in data collection
Use of the computer in qualitative analysis
Use of CD-ROM based systems
- Day 3 Morning: Continuation of problem solving session
Use of the Crystal data file
Other data files (max-d; electron diffraction, etc)
- Day 3 Afternoon: General question and answer session

For further information please contact:

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The cost of a course is \$625.00 which includes textural materials and lunches. Lodging, transportation and other costs are at the expense of the attendee.

JCPDS - International Centre for Diffraction Data Course Schedules

1989

November 14-16 San Francisco, CA

1990

February 2-4 Denver, CO

April 19-21 Florida

BCA Industrial Group/JCPDS-ICDD Powder Diffraction Course

The Powder Diffraction Course, held 4-6 November 1988 at the Science & Engineering Council's Daresbury Laboratory, Cheshire, was the first to be organized by the Industrial Group of the British Crystallographic Association. Since it was formed in 1983 the Group has arranged numerous one-day specialist workshops, mainly for small groups of industrial crystallographers who need an overview of a particular topic, or wish to keep abreast of latest developments. These have covered a diversity of topics, such as residual stress analysis, studies of clay minerals, quantitative analysis, computer programs for PD and the analysis of double-crystal rocking curves, but never before had a three-day PD course been attempted. The Daresbury Laboratory, home of the UK dedicated synchrotron radiation source, with an active powder diffraction group, was an ideal venue. The course, which attracted 34 participants, was sponsored by JCPDS-ICDD and conducted with characteristic enthusiasm by its Principal Scientist, Ron Jenkins. The programme was based on the well tried format for such courses, used worldwide by the Joint Committee, except that particular emphasis was placed on the use of the CD-ROM versions of the PDF and the Crystal Data File which were introduced recently. In view of the success of this first venture and the obvious demand for tuition in basic powder diffraction, it is the Group's intention to hold similar courses from time to time in the future. Details of these will be published in the BCA's quarterly 'Crystallography News'.

J. Ian Langford



Participants at the recent BCA Industrial Group JCPDS-ICDD course held at the Science & Engineering Council's Daresbury Laboratory, Cheshire, England.