

Education Subcommittee Minutes

Thursday, 26 March 2009

C. Segre, Chairman

1. Call to Order

Carlo Segre called the committee meeting to order.

2. Appointment of Minutes Secretary

Denise Flaherty was appointed the Minutes Secretary.

3. Approval of Minutes for March 2008

C. Segre highlighted the action items from the 2008 Minutes. There were no objections and the minutes were passed.

4. Review of Mission Statement

C. Segre projected the Mission Statement to the committee as a reminder of their duties and responsibilities.

5. Board of Directors' Liaison Report

Jim Kaduk represented the BoD and stated that the main task of the Education Subcommittee should be putting tutorials on the web. Use of the Powder Diffraction Database is available but not crystallography training. ACA was represented at the meeting by their president Robert Von Dreele. Kaduk stated that no one offers crystallography training on-line; ICDD is the only player. ICDD needs to provide more training for crystallography, in addition to the Rietveld Clinic. Kaduk asked the committee for advice on how far do we [ICDD] want to go to develop the materials. Kaduk also asked the committee for input on how to teach the professors and develop materials to help the students.

T. Fawcett interjected that in his networking with different professors he meets at conferences, they are interested in learning more, but they are 20 years behind in the technique and taking the time and effort to update and train them is too difficult. He also emphasized that for the 2009 year, ICDD expanded its Rietveld Workshop from 3 to 5 days and that broader input was wanted for this.

J. Cockcroft commented on the Rietveld courses run in the UK, and agreed that they also need longer training, and that more time needs to be spent on the basics.

J. Kaduk then proceeded to "plant some seeds for long term":

- XRD info on the web needs to be expanded (i.e. Wikipedia).
- Develop assessment tools to evaluate what the students have learned.
- How do we get people interested in this field?
- How do we reach young people (grades K-12)?

T. Fawcett interjected regarding clinics to let members know that small tests are done throughout the course to make sure the students are grasping the information, as well as surveys that are conducted after the clinics, and that XRD II has been certified as a Continuing Education Course (9 points).

A. Guloy would not like to see metrics during the clinics. He stated that students need time to apply what they have learned. Students in grades K-12 do not need to learn XRD but should start with simple science that is related, such as water-making rainbows. He has experience with teaching crystallography at Northwestern. The math background isn't there for most people taking the course. The math must be taught first, even before the basics.

T. Fawcett responded that E. Ryba does teach math during XRD I.

At that time, C. Segre asked the committee to defer the discussion until later so that there is time to get through the other agenda items.

6. Report on Clinics and Conferences

L. Mooney and T. Maguire presented their reports on the Clinics and Conferences organized by ICDD. Please see page 4 for L. Mooney's presentation, and page 15 for T. Maguire's presentation.

J. Cockcroft questioned how much active use of transmission mode took place during the clinics. T. Fawcett responded that it is not done every year, and is left to the will of the vendors, who have been great. T. Fawcett stated that B. Jones worked after hours with a student running transmission experiments and they had a D8 at the clinics.

T. Maguire noted to the members that the specialized workshops are so hands-on that the number of attendees must be limited with no more than 15 students to provide a 2:1 student to teacher ratio.

7. New Business

Only 15 minutes was left at the meeting for discussion of new business. C. Segre responded that not a whole lot could be decided at the current meeting, but opened the floor for discussion. H. McDonnell had a comment regarding reaching students grades K-12, and how the goal should not necessarily be to teach crystallography, but to excite them about science and math in general. C. Segre responded that a lot of the science is abstract and that they must show students something more concrete, such as XRF/Microscopy. J. Kaduk agreed with C. Segre, citing his studies with chocolate sandwich cookies, and how that type of science would interest students grade K-12.

T. Fawcett asked the members for guidance on content for educational programs.

E. Ryba urged members to look on the web, stating that there is a lot of information that is wrong. The information available is not homogenous (very specific to a course), and

that people need something with more continuity. He also urged that someone needs to be responsible to make sure that the information all fits together and is correct.

C. Segre questioned the members on what the committee can be doing to provide resources. He stated the need for an organized approach and asked that the clinic faculty put together some resources.

T. Fawcett commented that ICDD is working on a CD that is similar to current workbooks used in clinics.

A. Guloy commented that a lot of European groups already have crystallography tutorials on the web.

J. Cockcroft stated that the information from Birkback is available online.

T. Fawcett questioned if any member could tell ICDD where they should be pointing people to find information on the web, specific web sites that ICDD can send people to.

C. Segre asked for a small group of volunteers to sift through information and guide ICDD. E. Ryba was the only volunteer. C. Segre said that he would solicit others to develop a sub-group to do the screening.

T. Fawcett commented that he has a prototype almost available for the sub-group to review, once it is formed.

C. Segre stated that this should include software, as well as tutorials.

8. Adjournment

C. Segre adjourned the meeting.

X-ray Clinics

2008 in Review

2008 ICDD CLINICS

X-ray Fluorescence Spectrometry Clinic

Practical XRF, 28 April-2 May 2008

X-ray Powder Diffraction Clinic

Session I - *Fundamentals*, 2-6 June 2008

Session II - *Advanced Methods*, 9-13 June 2008

2008 CLINIC ATTENDEES

XRF

19

- 1 Tuition Waiver
- 5 Manufacturers' Discounts
 - Bruker AXS (2)
 - Claisse
 - Oxford Instruments (2)

XRD

Session I

36

- 2 Tuition Waivers
- 2 Manufacturers' Discount
 - Bruker AXS
 - ICDD
- 10 Two-week Discounts

Session II

22

- 2 Tuition Waivers
- 1 Manufacturers' Discount
- 10 Two-week Discounts



Ron Jenkins & Deane K. Smith

Tuition Waivers

XRF

Stephen M. Monk
Towson University, USA

XRD I & II

Ibrahim Abu Awwad
Royal Scientific Society, Jordan

Magdalena Aflori
Petru Poni Institute of
Macromolecular Chemistry, Romania



Future Tuition Waivers to honor

Dr. Eugene Bertin

Dr. Ron Jenkins

Dr. Deane K. Smith



XRF Faculty

- **John Anzelmo**, *Anzelmo and Assoc., Inc.*
- **Larry Arias**, *Bruker AXS, Inc.*
- **Richard Bostwick**, *Spex SamplePrep, LLC*
- **Larry Creasy**, Emeritus, *TIMET*
- **Tim Fawcett**, *ICDD*
- **Al Martin**, *Rigaku Americas Corp.*
- **Michael Rider**, *Bruker AXS, Inc.*
- **Mary Ann Zaitz**, *IBM Microelectronics*
- **Gregory Wortman**, *PANalytical*

XRD Faculty

- **Thomas Blanton**, *Eastman Kodak Company*
- **Lori Fields**, *Rigaku Americas Corp.*
- **C.M. Foris**, *ForChem Consultant*
- **Brian Jones**, *Bruker AXS*
- **Jim Kaduk**, *INEOS Technologies*
- **Sue Quick**, *The Pennsylvania State University*
- **Mark Rodriguez**, *Sandia National Laboratory*
- **Earle Ryba**, *The Pennsylvania State University*

XRD Faculty

ICDD Staff Instructors

- Justin Blanton
- Cyrus Crowder
- Timothy Fawcett
- Suri Kabekkodu
- W. Frank McClune
- Fangling Needham
- Joel Reid
- Charles Weth

Manufacturer Participation

XRF

- **Bruker S4 Explorer (WDS) & Picofox (TXRF)**
- **PANalytical MiniPal (EDS)**
- **Rigaku Primini (WDS)**
- **Spex SamplePrep & Claisse (specimen preparation tools)**



XRD I

- **Bruker D8**
- **Rigaku Miniflex**



ICDD 2009 Clinics!

Practical X-ray Fluorescence
18-22 May

Fundamentals of X-ray Powder
Diffractometry
8-12 June

Advanced Methods in X-ray Powder
Diffractometry
15-19 June

