

Electron Diffraction Subcommittee
Wednesday March 21, 2012
Bryan Wheaton, Chairman

Called To Order by Bryan Wheaton

Amy Gindhart was appointed minutes secretary

There were no minutes from 2011 to approve.

Bryan went through the mission statement of the Electron Diffraction subcommittee. He asked if changes should be made to the mission statement. No changes will be made.

The Electron Diffraction Subcommittee serves as a bridge between the electron diffraction community and the other parts of ICDD. It will communicate the needs of electron diffractionists to ICDD, so that ICDD may more effectively respond to those needs. It will assist in communicating to the electron-diffraction community the way in which ICDD will serve them. To these ends, it will cooperate with other ICDD subcommittees and with the central organization of ICDD. Specifically, the subcommittee shall monitor the status of and suggest improvements to the databases and related products used in electron diffraction (those produced by other organizations, as well as those produced by ICDD).

No board of director's liaison report was given.

Status of Electron Diffraction Software Updates

Cyrus Crowder- Software should be ready for alpha testing in April. Headquarters has added an electron diffraction search. This will be tailored specifically for d-spacings obtained from spot patterns from 2 or more zones. In the works, but not ready yet, is the ability to take a spot pattern and have the database identify which zone is seen. Headquarters has been collaborating with an outside expert to make an automatic zone axis identification process. There has been resurgence in the field requesting the electron diffraction information in the database. Headquarters has found it difficult and slow to get the electron diffraction vendors on-board, but we are trying to figure out the best approach to make that happen.

Lizhi Liu- There was a discussion about how to improve the search match results that can be achieved with this new search. He believes the current software we have should be sufficient and that we don't have to use other software with electron diffraction.

Marketing Sales Information

Helen McDonnell would like insight into ways to enhance interest into the electron diffraction aspect of the product. Helen said she will try to get back in contact with some of the vendors and previous contacts in the field.

New Business

John Friel mentioned that ASTM has 5 standards for grain-size. There is a new standard for measurement by EBSD that was published last year. A round robin was completed (draft report made 2/2012) by Andy Deal of GE on the standard comparing different measurements within the same laboratory and within 20 different laboratories. Precision is tighter and it is a direct method. The standard is able to report a grain-size with or without twins. E 04.11 committee is currently working on the standard.

Bryan mentioned a TEM colleague has some ideas to add to the scope of the committee.

- 1) There is no distinction between ordered and disordered structure of a material. Is it possible to add a button for this since a distinct difference in the diffraction pattern between the ordered and disordered state is observed? Cyrus- depends on what data has been added to the Database in the past. Each paper has different information in them. Ordered and disordered structures should have separate entries.
- 2) Can we rotate the different zone axes of the diffraction pattern and/or Kikuchi pattern? Rotate 3D model of the zone axis to coincide with experimental data. Cyrus- could be considered for a future release of the product.
- 3) Export 3D model of atom positions into a form that can be used to overlay on experimental data. Cyrus- Individual CIFs can be exported for entries with atomic coordinates.
- 4) Would it be possible to measure the distance and angles between the different spots in the software? Cyrus- will be added to the list of development ideas for the future.
- 5) Spot pattern overlay is very useful! Cyrus- could we get some examples of captures over Bryan's colleague's raw data so we have some examples to show?

Bryan went through some examples of how they use EBSD at Corning including orientation/texture mapping, grain size and grain boundaries.

Suggestions

Bryan mentioned that we could do a session of electron backscattering at the Denver X-ray conference to help gain interest. He also mentioned having a plenary at the March meetings and invite some vendors to help gain some interest. Tim Fawcett is the point of contact to put in a request for a plenary speaker.

No motions were presented.

Adjournment

Bryan Wheaton motioned to close the meeting.

Cyrus Crowder seconded motion to close meeting.

3 For

0 Opposed

0 abstained