

SIG12

Reported Period: 2009-2010

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Reported by: Helmut Ehrenberg, Julien Haines, Xavier Torrelles

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1. Introduction. (50 words max.)

The present SIG 12 officers are on duty for two years now. Some recent news require some changes again: One of us (H.E.) has taken over a chair for "Materials Science for novel Energy Storage Systems" at Inorganic Chemistry of the Karlsruhe Institute of Technology (KIT) in combination with becoming a head of the Institute for Applied Materials (IAM). In the light of these new tasks for H.E., a reorganization of the SIG 12 team is suggested: Accordingly, the present co-chair (J.H.) is proposed to become the new SIG 12 officer and the present secretary (X.T.) the new co-chair. In order to have a balance of nationalities a young German researcher will be proposed. A presentation of this team and any other candidates will take place during the IUCr meeting in Madrid.

2. SIG web site:

SIG12: NO

3. Number of ECA individual members registered with the SIG according to (<http://www.xray.cz/eca/im-payment.htm>)

SIG12 Materials Science 139 (at 23th of May 2011)

4. Existence of a SIG mailing list: No

Address of the mailing list: -.-

Number of members in the SIG mailing list: -.-

5. Approximate total number of researchers involved in the SIG (please indicate the basis for the estimate)

-.-

6. List of MS organized by the SIG at the last ECM

Title: 26th European Crystallographic Meeting, Darmsdat, 29/08 to 2/09/2010 Germany
A member of SIG 12 participated in the general organization of ECM 26 as member of its Organizing Committee. A meeting of the members of SIG 12 was held during ECM26 to discuss the role of SIG12 and future projects. SIG12 will propose two microsymbiosia for ECM27 in Bergen: "Ferroic and multiferroic materials" and "Materials in operando and in situ crystallography of materials". SIG12 will also co-propose two microsymbiosia (Main proposer SIG11): "Hydrogen-bearing materials" and "Structure and properties of non-crystalline materials at high pressure and temperature".

Title: 26th European Crystallographic Meeting, Darmsdat, 29/08 to 2/09/2010 Germany
microsymbiosium MS39 "Surfaces, Interfaces and Nanostructures "

Number of Participants: about 45

Level of involvement of SIG in the activity:

ECA Individual Members registered with the SIG involved in the organizing committee

ECA Individual Members registered with the SIG involved as lecturers

endorsed (SIG logo on the web page/leaflets)

Sponsored by ECA?

O Yes

Other Sponsors/Organizers:

Short Description: (50 words max.)

A member of SIG12 participated in the organization of the microsposium "Surfaces, Interfaces and Nanostructures" at ECM 26. The state of the art in the study of the surface structure in single crystals in ambient conditions was presented. I would recommend to enlarge the size of MS (at least some of them) to enhance some thematic or topics in agreement with other SIGs.

SIG 12 also participated in proposing and in the organization of the following microsypmosia:

<i>Title</i>	Proposed together with other SIGs
<i>MS13: Complex metallic alloys</i>	Marc de Boissieu (F) & Grygoriy Dmytriv (UKR) SIG 3 - SIG 12
<i>MS14: New inorganic materials for technological applications</i>	M. Nespolo (I) & Mikhailova (D) SIG 5 - SIG 12
<i>MS18: Open structures and aperiodic crystals under in situ/non-ambient conditions</i>	Olga Degtereva (UK) & Vachev Petricek (Cz) SIG 11 - SIG 12 - SIG 13
<i>MS19: Structure and properties of functional materials at extreme conditions</i>	N. Dubrovinskaia (D) & C. Braun (D) SIG 11 - SIG 12
<i>MS32: Self-assembled functional materials: biomineralization, biomimetics and beyond</i>	Juan Manuel García Ruiz (Spain) & Fiona Meldrum (UK) SIG 7 - SIG 12

7. Prizes sponsored/coordinated

The European Crystallographic Association (ECA) and the European Neutron Scattering Association (ENSA) announced the call for nominations for the Third Erwin Felix Lewy Bertaut Prize in honour of the late Erwin Felix Lewy Bertaut. The prize is awarded to a young European scientist. The prize was awarded at ECM26 on Wednesday September 1, 2010 in the Spektrum A (Plenary Hall).

The fifteen best posters were awarded at ECM 26. SIG12 officers participated in the jury, which selected the laureates. The poster prize "Umicore Poster Prize for Funtional Materials" was coordinated and promoted by SIG12. The works covered several areas of physics, chemistry and biology.

8. Past Activities other than Microsypmosia at ECM

SIG 12 officers and reasearchers involved in the SIG organized and participated in the microsypmosia of the EPDIC-12 conference held in Darmstadt, Germany from Aug. 27 to Aug. 30, 2010, such as that devoted to "Structure and properties of functional ceramics".

Number of Participants: about 40

Level of involvement of SIG in the activity:

- ECA Individual Members registered with the SIG involved in the organizing committee
- ECA Individual Members registered with the SIG involved as lecturers
- endorsed (SIG logo on the web page/leaflets)

Sponsored by ECA?

- No

Other Sponsors/Organizers:

Short Description: (50 words max.)

A member of SIG12 participated in the organization of the microsymposium " Structure and properties of functional ceramics" at EPDIC-12. Six presentations and 10 posters were presented concerning the use cutting-edge x-ray and neutron diffraction techniques, including in situ measurements under electric fields, to obtain detailed structural information to order to better the optimize the properties of functional ceramics.

9. Future/Programmed Activities.

Title: V Meeting of the Spanish Association of Synchrotron Radiation Users

Number of expected Participants: 120

Level of involvement of SIG in the activity:

- ECA Individual Members registered with the SIG involved in the organizing committee
- ECA Individual Members registered with the SIG involved as lecturers
- endorsed (SIG logo on the web page/leaflets)

Sponsored by ECA?

- No

Other Sponsors/Organizers:

- Spanish Scientific Research Council (CSIC)
- AUSE (Spanish Users of Synchrotron Radiation)
- Spanish Department of Research & Science (MICINN)

Short Description: (50 words max.)

The Spanish Association of Synchrotron Radiation Users (AUSE) organizes a meeting every two years with the objective to provide a forum to the Spanish radiation synchrotron community to encourage the scientific discussions in different scientific areas as physics, chemistry, material science, geology, biology, environment, energy,...

Usually the meeting is divided in eight sessions and takes three days. The participation of PhD students is partially covered by the Organization (travel and/or stay). The three best posters (becoming to young students) are awarded during the meeting.

(6-9 September 2011, Valencia, Spain)

10. Other matters. (50 words max.)

SIG 12 officers are actively involved in the conception, realisation and use of experimental stations and new sample environments at large scale facilities (e.g., ALBA in Barcelona, HASYLAB in Hamburg, FRM-II in Munich and ILL in Grenoble) to open new possibilities for the structural investigation of functional materials under *in situ* and *in operando* conditions. ALBA injected few mA in the storage ring during some minutes end of 2010. Beam stability was inside predictions. More recently, last March, ALBA injected 100 mA in the storage ring during several hours with great beam stability. In consequence it is expected to start the commissioning procedure in several beamlines at the ending of the present 2011 year.

11. Brief annual activity report (100 words max.)

SIG 12 has to bridge different communities. Dedicated conferences deal with specific classes of functional materials, while crystallographic expert knowledge is growing and well preserved mainly in the national and international crystallographic societies and associations. The activities of SIG 12 aim to be involved in the development of methods (e.g. at synchrotron and neutron facilities) and to spread the crystallographic knowledge in materials devoted workshops and meetings. On the European level the European Powder Diffraction Conference (EPDIC) is one of the meetings with highest relevance for the development of methods and the EUROMAT one with the focus on specific classes of materials.

12. List SIG officers, name and e-mail, and specify their main function in the SIG:

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