

SIG12

Reported Period: 2013-2014

Report Date: 01/07/2014

Reported by: Julien Haines, Xavier Torrelles, Andrzej Grzechnik

=====

1. Introduction. (50 words max.)

The main activities of the SIG team have been to prepare the Rovinj ECM, to participate in the organization of various materials-science related meetings and particularly this year to organize many events linked to the IYCr2014. The 3-year mandate of the present SIG 12 officers will expire in 2015. New elections will be organized at the Rovinj ECM.

2. SIG web site:

SIG12: <http://andr486.wix.com/sig12>

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

SIG12 Materials Science

217 (on 26/06/2014)

4. Existence of a SIG mailing list: yes

Address of the mailing list: previously ecasig12@uhp-nancy.fr

Number of members in the SIG mailing list: 27 in 2013

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

About 220 based on 3. and 4.

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

Title: ECM28 Warwick

SIG12 proposed and organized or co-organized two microsypmosia for ECM27 in Bergen:

SIG12 was the principal organizer of the following microsypmosia:

1. MS34 Thin films (with SIG 6)
2. MS35 Magnetic materials and in situ studies under magnetic fields (with SIGs 6 and 11)
3. MS36 Twinning, polytypes and modular structures (with SIG3)

SIG12 co-organized the following microsypmosia proposed by other SIGs:

1. MS32 Structural studies at extreme conditions by single crystal X-ray diffraction (SIG 11)
2. MS18 From nature to laboratory: crystallography of minerals and mineral-related materials (SIGs 5 and 11)

3. MS20 Crystal physics of minerals and materials at variable pressures and temperatures (SIGs 5 and 11)
4. MS19 Heavy crystals: structural crystallography of heavy-element compounds (SIGs 5 and 11)

7. Prizes sponsored/coordinated

STOE sponsored a poster prize in the field of the crystallography of functional materials at ECM28 in Warwick. STOE agrees to sponsor a poster prize at ECM29 in Rovinj.

8. Past Activities other than Microsymposia at ECM

Title: Workshop "Frontiers of Crystallography" (Novosibirsk State University, October 2-6, 2013)
SIG12 contributed to the programme of this workshop on the latest advancements in high-pressure single-crystal diffraction as a continuation of the two ECM satellite workshops in Darmstadt and Bergen (http://km.igm.nsc.ru/index.php?option=com_content&task=view&id=52&Itemid=87).

Title: VIth AUSE National Conference and Ist ALBA Users' Meeting
Place: ALBA Maxwell auditorium. Bellaterra Campus. Cerdanyola del Valles. Barcelona
Dates: Tuesday-3 to Friday-6, September 2013

The VIth Meeting of the Spanish Association of Synchrotron Radiation Users (AUSE) was held in Barcelona from 3 to 6 of September 2013. The SIG members involved in the event participated as lecturers and members of the organizing committee. The meeting will not be sponsored by ECA. The main sponsors are the Spanish Scientific Research Council (CSIC), AUSE (Spanish Users of Synchrotron Radiation), ALBA synchrotron and the Spanish Ministry of Economy and Competitiveness (MEC).

Title: EPDIC 14 Aarhus (June 15-18, 2014)

MS 11 on "Structure and properties of functional materials" was chaired by the SIG12 member and former chair Helmut Ehrenberg.

9. Future/Programmed Activities.

Title: ECM29 Rovinj

SIG12 proposes the following microsymposia:

1. Thermoelectric Materials – From fundamental Science to Applications
2. (Multi-)Ferroic and multi-functional Materials: Synthesis, Properties and High-pressure Behavior (support from SIG 11)
3. In situ and in operando crystallography (support from SIG 11)
4. Physical properties through lattice distortions: structure of perovskites & Co studied by electron microscopy and diffraction (together with SIG4)

SIG12 will participate in the organization of the following microsymposia proposed by other SIGs:

5. Topology of crystal structures (SIG 13)
6. New methods and approaches in inorganic crystal chemistry (SIG 5)

7. Mineralogical crystallography: Nature as a source of inspiration for new materials (SIG 5)
8. High Pressure Solid State Chemistry and Materials Synthesis (SIG 11)
9. Correlated electron systems under extreme conditions (SIG 11)
10. Hydrogen-rich solids under extreme conditions (SIG 11)

SIG12 officers and SIG12 members will participate in the organization of the 52nd European High Pressure Group International Meeting in Lyon (7-12 September 2014). We have included in the program a special IYCr2014 crystallography session and a plenary lecture on materials crystallography under extreme conditions.

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, Petra-III in Hamburg, FRM-II in Munich and ESRF and ILL in Grenoble, Soleil in Paris) to open new possibilities for the structural investigation of functional materials under *in situ* and *in operando* conditions. ALBA is currently in operation mode and users are already performing experiments in different areas of soft and hard Materials Science.

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

SIG12 members are strongly involved in various activities for IYCr2014 (visits, exhibitions, conferences). SIG 12 participated in the organization of materials science related microsymbiosia at the Warwick meeting and we will propose a number of microsymbiosia for the Rovinj meeting. SIG officers are also involved in the organization of conferences and workshops related to materials crystallography at material science and diffraction-related meetings. The members of SIG 12 strongly participate in the development of methods at large scale facilities (e.g. at synchrotron and neutron facilities).

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

Chair:

Dr. Julien Haines
Institut Charles Gerhardt Montpellier
UMR 5253 CNRS-UM2-ENSCM-UM1
Equipe C2M
Université Montpellier 2 Sciences et Techniques
Place E. Bataillon cc 1504
34095 MONTPELLIER cedex 5
FRANCE
Phone: +33 (0)467 14 93 49
Fax: +33 (0)467 14 42 90
Email : julien.haines@univ-montp2.fr

Co-Chair:

Dr. Xavier Torrelles
Institut de Ciència de Materials de Barcelona
Campus UAB, Bellaterra
08193 Barcelona

Phone: +34 93 580 1853 ext. 307

Fax: +34 935805729

Email: xavier@icmab.es

Secretary:

Dr. Andrzej Grzechnik

Institute of Crystallography

RWTH Aachen

Jägerstr. 17-19

D-52066 Aachen

Germany

Phone: +49 241 80 96901

Fax: +49 241 80 92184

Email: grzechnik@xtal.rwth-aachen.de