

SIG12

Reported Period: 2015-2016

Report Date: 25/07/2016

Reported by: Andrzej Grzechnik, Manuel Hinterstein & Jerome Rouquette

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1. Introduction. (50 words max.)

The main activities of the SIG team have been to prepare the Rovinj and Basel ECMs.

2. SIG web site:

SIG12: <http://ecanews.org/mwp/groups/sig-12-crystallography-of-functional-materials/>

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

SIG12 Materials Science 202 (as of 02/07/2015)

4. Existence of a SIG mailing list: yes

Address of the mailing list: previously ecasing12@uhp-nancy.fr

SIG12 communicates with its members via the ECA webpages <http://ecanews.org/mwp/groups/sig-12-crystallography-of-functional-materials/>

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

191 members registered on <http://ecanews.org/mwp/groups/sig-12-crystallography-of-functional-materials/> as of 21/07/2016.

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

Title: ECM29 Rovinj

SIG12 proposed and was the principal organizer of four microsypmosia at ECM29 in Rovinj:

1. In situ and in operando crystallography
2. Thermoelectric materials – from fundamental science to applications
3. Mineralogical crystallography: Nature as a source of inspiration for new materials
4. Physical properties through lattice distortions: structure of perovskites & Co studied by electron microscopy and diffraction

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

1. Topology of crystal structures
2. High Pressure Solid State Chemistry
3. Quasi crystals and aperiodic materials

All these microsypmosia were highly successful and very well attended.

7. Prizes sponsored/coordinated

STOE regularly sponsors a poster prize in the field of the crystallography of functional materials at the ECMs (Warwick, Rovinj, and Basel).

8. Past Activities other than Microsymposia at ECM

SIG12 members actively participated in the “MLZ Conference: Neutrons for Energy” in Bad Reichenhall (Germany, July 18-22, 2016). The topics included among others energy storage and energy transformation (batteries, fuel cells, electrolysis, thermoelectrics, and magnetocalorics) & solar energy applications.

SIG12 members also participate in the organization of the “International Conference on Applied Crystallography” in Houston (USA, October 17-19, 2016).

9. Future/Programmed Activities.

Title: ECM30 Basel

SIG12 organizes the following microsymposia:

1. MS19 Solid State Oxygen Fuel Cell, Hydrogen Storage & Battery Materials
2. MS20 Materials for energy conversion and harvesting
3. MS21 Structural Disorder and Materials' Properties at ambient and non-ambient conditions
4. MS 17 Minerals, materials and polymorphs

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

1. MS15 Minerals and materials (SIG5)
2. MS16 Structure-property relationships in high pressure crystallography (SIG11)
3. MS 18 Structures of minerals, planetary and carbon materials at Earth and planetary conditions (SIG11)
4. MS43 Combining x-ray diffraction and other techniques for in situ and in operando studies (SIG8)

10. Other matters. (50 words max.)

Members of SIG 12 are also involved in the realisation and use of experimental stations and new sample environments at large scale facilities (Petra-III in Hamburg, FRM-II in Munich and ESRF and ILL in Grenoble) to open new possibilities for the structural investigation of functional materials under *in situ* and *in operando* conditions.

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

SIG officers are involved in the organization of conferences and workshops related to materials crystallography at material science and diffraction-related meetings. They participate in review and advisory committees in various European large-scale facilities.

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

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