SIG No: 4 Reported Period: 2013-2014 Report Date: 03.06.2012 Reported by: Holger KLEIN

1. Introduction. (50 words max.)

The aim of SIG#4 is to raise the awareness and acceptance of Electron Crystallography to a rank comparable to X-ray crystallography. This requires concerted efforts of groups and researchers in this field and external support. Our purpose is the realization of the full potential of electron optical methods in structural research.

2. SIG web site:

SIG 4 url: http://sig4.ecanews.org/

3. Number of ECA individual members registered with the SIG according to
(http://www.xray.cz/eca/im-payment.htm)SIG 4electron crystallography6

4. Existence of a SIG mailing list X Yes / O No Address of the mailing list: ecaelectronsig@iucr.org 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)

39 researchers have participated in SIG meetings

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

- MS15 Electron microscopy for aperiodic structures
- MS16 X-rays and electrons: joining forces
- MS17 Combined methods for soft matter crystallography

7. Prizes sponsored/coordinated

ECM 28: 2 Poster prizes for young researchers in electron crystallography

8. Past Activities other than Microsymposia at ECM

Title: 6th KHKuo summer school - New development in electron microscopy

Number of participants: 300

Level of involvement of SIG: ECA Individual Member registered with the SIG involved as coorganizer

Notes: the school was held in in Suzhou, China, from July 3-8, 2013. One of the topics is "electron crystallography and applications in materials science" with lectures for one day.

Title: International Workshop 2: Powder & Electron Crystallography

Number of Participants: 35

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

Short Description: (50 words max.)

An international workshop was held at the University of Patras in Patras, Greece (8-12 July 2013) on the use and further development of methods in powder and electron crystallography. The topics

included: The physical bases of the electron diffraction and their special features with respect to X-ray and neutron diffraction. The experimental diffraction methods: traditional diffraction techniques and PED and ADT methods. Phasing via electron diffraction data: computer applications. **Workshop Website:** <u>http://crystallographypatras.wordpress.com/</u>

Title: Electron Crystallography School – Introduction to electron diffraction tomography

Number of Participants: 42

Level of involvement of SIG in the activity:

Members registered with the SIG involved in the organizing committee

ECA Individual Members registered with the SIG involved as lecturers

Short Description: (50 words max.)

The school (7.4.-11.4.2014) organized by the group of Prof. Ute Kolb covered the basic concepts of electron diffraction and imaging, new ways of data acquisition using different upcoming tomography methods in reciprocal space as well as procedures for structure solution. 5 Lecturers gave practical afternoon courses using different transmission electron. The school was sponsored by the IUCr and the ECA.

Title: ESTEEM2 Electron Crystallography Workshop, ,

Number of Participants: 38

Level of involvement of SIG in the activity:

Members registered with the SIG involved in the organizing committee

ECA Individual Members registered with the SIG involved as lecturers

Short Description: (50 words max.)

Under the auspices of the European network ESTEEM 2, the University of Cambridge Electron Microscopy Group hosted a workshop (22 - 25 July 2014) on electron crystallography (EC) at Downing College, Cambridge. It showcased the latest developments in EC theory and experiment with topics including precession electron diffraction, convergent beam electron diffraction, ptychography, structure solution and structure refinement methods (direct methods, charge flipping, etc), high resolution imaging and orientation mapping.

Workshop Website: http://www.ecryst2014.msm.cam.ac.uk/

9. Future/Programmed Activities.

After a very active year, we have no knowledge of schools or workshops planned for the coming year.

10. Other matters. (50 words max.)

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

This last year the members of SIG4 were involved in many activities like workshops and schools (cf. more detailed descriptions above) as we believe that teaching is a key activity to promote electron crystallography. Knowledge about the possibilities of structure determination by electron crystallography and the practice of its methods is steadily increasing in the crystallographic community. We took an active part in the program committee of ECM28 in Warwick, UK. The microsymosia we organize jointly with other SIGs clearly show the interdisciplinary interest electron crystallography induces. We participate in the organisation of ECM29 in Rovinj, Croatia.

12. List SIG officers, name and e-mail, and specify their main function in the SIG: Holger KLEIN, <u>holger.klein@grenoble.cnrs.fr</u>, chair Mauro GEMMI, <u>Mauro.Gemmi@iit.it</u> co-chair Lousia MESHI, <u>Louisa@bgu.ac.il</u> secretary Andrew STUART, <u>stewarta@uni-mainz.de</u>, webmaster