

## **SIG5**

**Reported Period: September 2017- August 2018**

**Report Date: August 20<sup>th</sup>, 2018**

**Reported by: Oleg Siidra**

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### **1. Introduction.**

In 2017-2018, main activity of the SIG5 was devoted to the organization of microsymbosia at ECM31 in Oviedo.

### **2. SIG web site:**

SIG5 <http://sig5.ecanews.org/>

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

SIG5 Mineral and Inorganic Crystallography ~120

### **4. Existence of a SIG mailing list Yes (general renewal is required)**

**Number of members in the SIG mailing list: 164**

**5. Approximate total number of researchers involved in the SIG (please indicate the basis for the estimate)** 164 (this is the number of members of the mailing list, *i.e.* number of researchers who explicitly indicate their involvement in the SIG)

### **6. List of MS organized by the SIG5 at the ECM 31**

#### **a) Microsymbosia**

#### **MS proposed in collaboration with SIG08 (Powder Diffraction):**

- **MS13- New insights on diffraction studies of minerals and related materials.**

#### **Chairs:**

Dr. Catherine Dejoie (ESRF, France)

Prof. Giuseppe Cruciani (University of Ferrara, Italy)

Many present and future advances of minerals and materials characterization are linked to evolution of characterization methods. This MS will be dedicated to recent advances in diffraction methods using conventional and synchrotron X-ray radiation as well as neutrons and XFEL experiments.

#### **MS proposed in collaboration with SIG03 (Aperiodic Crystals) and SIG04 (Electron Crystallography):**

- **MS14- Combined approaches for structure characterization of modulated and complex structures**

#### **Chairs:**

Prof. Joke Hadermann (University of Antwerp, Belgium)

Dr. Phillipe Boullay (CRISMAT (Caen) - CNRS , France)

The MS is dedicated to contributions about structure characterization of modulated and complex structures including minerals and related compounds, and about related analytical methodologies. Particular focus will be given to works combining different scientific approaches, such as diffraction, microscopy or spectroscopies.

**MS proposed in collaboration with SIG11 (Crystallography under Extreme conditions):**

- **MS15-** Crystallography in Earth and space

**Chairs:**

Dr. Anna Pakhomova (Deutsches Elektronen Synchrotron, Germany)

Prof. JuanMa García-Ruiz (LEC, CSIC, Spain)

This MS is dedicated to the structural characterization of minerals and their evolution in space and also in Earth's mantle with the ulterior motive of identifying their growth conditions, a key point to understand the story of planets and space.

**MS proposed in collaboration with SIG12 (Crystallography of functional materials):**

- **MS16-** Understanding of functional materials

**Chairs:**

Dr. Oleg Siidra (Saint-Petersburg State University, Russia)

Dr. Claire Colin (Institut Néel, CNRS & UGA, France)

Particularly, this MS focus on newly characterized functional materials, minerals and related compounds, identification of their synthesis, growth conditions and development of characterization methods to solve their complex structures. Also with the prediction, synthesis and characterization of novel complex functional materials directly inspired from minerals architectures and from their growth conditions.

**MS proposed in collaboration with SIG04 (Electron Crystallography):**

- **MS23-** Advances in electron crystallography methods

**Chairs:**

Dr. Mariana Klementova (Institute of Physics of the Czech Academy of Sciences, Czech Republic)

Dr. Enrico Mungaioli (Istituto Italiano di Tecnologia, Italy)

In the last years electron crystallography experienced a fast growth and became an actual choice for researchers interested in the structure characterization of nano-crystalline materials. The main advantages of electron crystallography are the possibility to combine imaging and diffraction data, to work with nanometric and sub-nanometric probe sizes, to get single-crystal like data from volumes of few tens of nanometers, to be more sensible to light elements. Electron diffraction tomography, phase and orientation mapping and dynamical refinement are three examples of recent advances that in a short time conquered the interest of a broad scientific community.

**MS proposed by SIG05:**

- **MS17-** Biominerals and bioinspired materials

**Chairs:**

Prof. Wolfgang Schmahl (LMU Munich, Germany)

Dr. Anna Schenk (University of Bayreuth, Germany)

Bioinspired materials are synthetic materials whose structure, properties or function mimic those of biominerals. The possible fields of applications are various, ranging from physics to medicine. The aim of this MS is to show how bioinspired materials may be obtained from understanding of the synthesis and self-assembly of building blocks of natural materials.

**b) Keynote lecture:****KN-08**

**Chair:** Dr. Karen Friese

Exotic Topochemical Alteration of the Cationic Sublattices in Oxides: The complex crystallography behind.

**Olivier Mentré (UCCS CNRS)**

**c) Poster Prize**

SIG5 proposes to organize a poster prize in collaboration with IMA (International mineralogical association) for the poster from young scientist devoted to mineralogical crystallography.

**8. Past Activities other than Microsymposia at ECM**

Title: **XXII Meeting of The International Mineralogical Association**

<http://www.ima2018.com/about-ima-2018/>

Number of Participants: 2000

Level of involvement of SIG in the activity: SIG5 gave his support and organization of ~5 MS.

5 ECA Individual members registered with the SIG involved in the organizing committee

4 ECA Individual members registered with the SIG involved as lecturers

O endorsed (SIG logo on the web page/leaflets) No

Sponsored by ECA? No

Other Sponsors/Organizers: IMA

Short Description: (25 words max.) The International Mineralogical Association congress was held from 13 to 17 August 2018 in Melbourne, Australia and devoted to large number of disciplines related to Mineralogy.

**9. Future/Programmed Activities.**

32nd European Crystallographic Meeting

ECM 32 Vienna, Austria 18 - 23.08.2019

<https://ecm2019.org/home/>

Number of Participants: ~ 1000

Level of involvement of SIG in the activity: SIG5 will give his support and organization of ~5 MS.

3 ECA Individual members registered with the SIG5 involved in the organizing committee

**10. Other matters.** (50 words max.)

None.

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

SIG5 was mainly involved in the organization of the ECM31–Oviedo. Six microsymposia in collaboration with the other SIGs were done. One keynote lecture was accepted.

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

**Chair** Dr. Marie Colmont [marie.colmont@ensc-lille.fr](mailto:marie.colmont@ensc-lille.fr)

**Vice-chair** Prof. Dr. S.V. Krivovichev [skrivovi@mail.ru](mailto:skrivovi@mail.ru)

**Secretary** Dr. Oleg Siidra [o.siidra@spbu.ru](mailto:o.siidra@spbu.ru)