Société Française de Minéralogie et de Cristallographie

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SFMC GENERAL ASSEMBLY REPORT

The SFMC's annual general assembly was held 16 June 2017 at the National Museum of Natural History in Paris (France). At the assembly, Marc Blanchard, SFMC Secretary, summarised the activity of the society during the year 2016. The SFMC supported several scientific meetings, among them the 2nd European Mineralogical Conference, the 4th Serpentine Days meeting, the meeting of the French Association of Crystallography, the 38th Meeting of the International Cement Microscopy Association, and the 5th School of Crystallography (Synchrotron SOLEIL). At the SFMC 2017 general assembly, Marc also spoke of the two winners of the 2016 Haüy–Lacroix Award, and the society's contributions to the *European Journal of Mineralogy* and *Elements*. Christian Chopin, SFMC Treasurer, presented the 2016 budget, which was approved. Following this, the assembly discussed the possible creation of a prestigious SFMC prize for researchers in the field of mineralogy and crystallography.

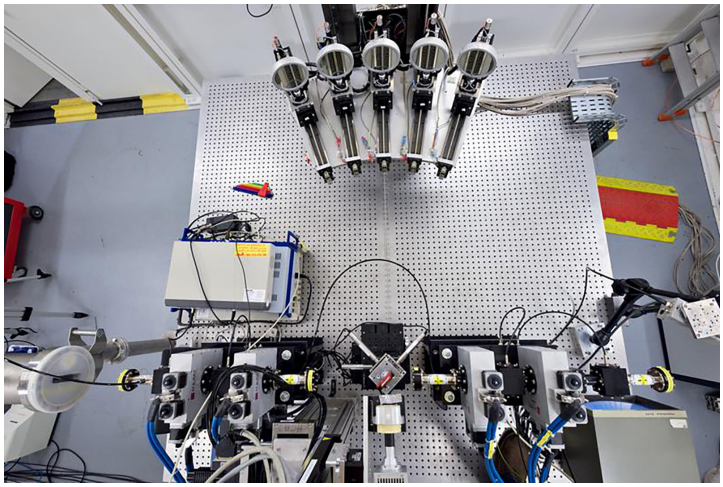
Before closing the SFMC's general assembly, Bertrand Devouard, SFMC President, announced that the 2017 Haüy–Lacroix Award will go to Alexandra Goryaeva (MATEIS, INSA-Lyon, France) for her PhD modeling work of the post-perovskite phase deformation, and to William Rapin (Paul Sabatier University, Toulouse, France) who studied the hydration of Mars surface by analyzing data collected by the *Curiosity* rover.

Members of the SFMC had a most pleasant end to the 2017 assembly by visiting the new setting of the mineral collection of the Sorbonne University, accompanied by the curator, Jean-Claude Boulliard.

FAME-UHD: A NEW BEAMLINE AT ESRF

A New National and International Research Instrument for Investigating the Chemical State and Structure of Highly Diluted Elements

How do cerium oxide nanoparticles link to cells? What is the partitioning of germanium as a function of ore-deposit conditions of formation? In which chemical state are the rare-earth elements in meteorites? These are some of the questions that can be addressed with a new collaborating research beamline: FAME-UHD (French Absorption spectroscopy beamline in Material and Environmental sciences at Ultra-High Dilution), which is based at the European Synchrotron Radiation Facility (ESRF) in Grenoble (France).



The FAME-UHD facility has been open to researchers (French and international) since January 2017 and is designed to provide new characterisation possibilities. It is now possible, for example, to determine the chemical state and the structure of diluted elements using X-ray absorption spectroscopy both on FAME and FAME-UHD, the latter being dedicated to analysis with high-energy resolution. These two instruments are complementary, both in terms of accessible concentration range as well as in terms of available in situ sample environments. Both give the possibility to probe elements at concentrations lower than a few ppm (parts per million) in natural or synthetic samples. The considerable gain in performance has been obtained thanks to the installation of state-of-the-art optical elements, as well as a crystal analyser spectrometer which is a very selective X-ray fluorescence detector.

Scientists coming to FAME or FAME-UHD not only want to demonstrate the presence of particular chemical elements but also want to determine their speciation, i.e. their oxidation/reduction state and how the elements bind to neighbouring molecules. Lowering detection limits down to the ppm level at FAME-UHD enables the characterisation of trace elements in natural samples (e.g. in soils, in hydrothermal fluids, or in the investigation of pollutant effects on bio-environments). The FAME-UHD beamline also opens up research on fields such as ecotoxicology, in which the ability to access very low chemical concentrations (and determine chemical speciation) means that proof-of-principle studies can be tested against reality.

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Website: http://www.esrf.fr/home/UsersAndScience/Experiments/CRG/bm16.html