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SCIENTIFIC PROGRAM

Petrology and Geo/Cosmochemistry

- Meteorites and the early Solar System
- The mineral record of impact events
- Stable and radiogenic isotopes – clocks and tracers of rocks
- Magmatic petrology – from melt to rock
- Metamorphic rocks: petrology, geochemistry, geochronology
- Minerals – fluids – rocks
- Minerals in the environment – from geo- to biosphere

General Mineralogy and Crystallography

- Microstructures, textures, and interfaces of minerals
- Mineral physics and the deep Earth's interior
- Crystal structures and properties of materials
- Mineralogical crystallography
- Modern techniques for mineralogical research
- Mineralogical museums and collections

Applied Mineralogy

- Functional materials
- Technical mineralogy – cements, ceramics, and glasses
- Economic minerals: formation, characterization, and applications
- Archeometry and monument conservation

Plenary Talks

- Prof. Dr. G. Diego Gatta
Università degli Studi di Milano (Milano, Italy)
- Prof. Dr. Mihály Pósfai
University of Pannonia Veszprém (Veszprém, Hungary)
- Dr. Hella Wittmann-Oelze
Helmholtz-Zentrum-Potsdam (Potsdam, Germany)
- Prof. Dr. Klaus Keil
University of Hawaii (Honolulu, USA)

Website: www.dmg2014.de

22nd ANNUAL MEETING OF THE GERMAN CRYSTALLOGRAPHIC SOCIETY (DGK)

Most minerals are crystalline, and if in some of them the ordering of atoms is in doubt, the degree of crystallinity of those minerals is an important topic of mineralogical research. Historically, when ideas about the inner structure of crystals and its correspondence with macroscopic crystal morphology emerged, the study of crystals was the study of minerals. During the 20th century crystallography became an important part of biological sciences as well, especially in the subdisciplines of microbiology and structural biology, and also in highly applied branches like pharmacology.



Susan Schorr and members of her organizing team at the booth of a sponsoring company. The persons to the left and right of the support team are officials of this company, which sponsored more than just the team T-shirts.

Stereotypic thinking thus creates tension in the study of crystals among geological science, materials science, and biological science, and this tension led to an ironic schism in Germany in the early 1990s. Just after the reunification of East and West Germany, the mineralogically and crystallographically inclined community dissociated into the German Mineralogical Society (DMG, now with more than 1700 members) and the German Crystallographic Society (DGK, now with more than 1000 members). Many scientists are members of both societies!

The German Crystallographic Society held its 2014 annual meeting in Berlin in the convivial ambiance of Freie Universität's Henry Ford Bau. Some 516 participants were part of this successful meeting, directed by Susan Schorr and her supporting team from FU Berlin and Helmholtz Centre Berlin. As usual, the meeting consisted of about one-third organic and two-thirds inorganic crystallography. In Berlin a new session theme, "Crystallography in Geology," was convened by Rainer Abart (Vienna) and Claudia Trepmann (Munich). The topics covered the entire geosphere, from near-surface conditions (e.g. ancient and recent marine-carbonate cements) to the Earth's crust (e.g. slip systems in zircon) and down into the mantle (e.g. inclusions in diamond). The most used techniques in geologically inclined crystallography seem to be modern single-crystal and powder X-ray diffraction, including synchrotron methods, as well as electron diffraction, especially electron backscatter diffraction. The transmission electron microscopy community was probably underrepresented in this session. Still, polarized-light microscopy remains an indispensable complement to the more recent (and much more expensive) research tools.

The session was very useful in highlighting the approaches followed by crystallographers from various subdisciplines. In "Crystallography in Geology," there was strong emphasis on texture formation, surface crystallography, and the crystal's response to outer forcing, like applied or reaction-induced pressure. Thus, there was a strong interest in the ways crystalline substances interact with their surroundings. This contrasts with crystallographic research that places the focus on the synthesis and structural characterization of isolated substances, often in search of technical applications or improvements. It seems that both traditions could profit from close interaction. Moreover, there is an obvious need to close the gap between structural biology and inorganic materials science, and this could easily be done by mineralogists who have adopted "biomineralogy" as a centerpiece of modern mineralogical science. Consider that ordinary limestone is in large part a product of biomineralogical processes, not to speak of phosphorites and the bones, teeth, and other mostly undesired crystalline precipitates in our own bodies. Along with "Crystallography in Geology," which should be continued, I suggest that colleagues in the DGK make "Crystallography of Biominerals" a topical session in the coming years.

Ralf Milke (FU Berlin)

DMG JOINT WORKSHOP

A joint workshop of two German Mineralogical Society (DMG) sections – Chemistry, Physics, and Crystallography of Minerals (CPKM) and Applied Mineralogy in Technique and Environment (AMiTU) – was held on 26–28 February 2014 in Bad Windsheim, in the northern region of Bavaria. The workshop was organized by the section leaders, Christoph Berthold from the University of Tübingen and Gert Klöß from the University of Leipzig. Some 35 graduate students, postdocs, and senior scientists attended 23 lectures, which were mostly given by the students. The aim of this workshop was to bring the students into contact with experienced scientists in order to start discussions about the students' recent and future scientific work.

At the start, Claudia Weidenthaler from the Max-Planck-Institute für Kohlenforschung introduced the audience to a new section of the German Crystallographic Society (DGK) with the translated title Crystallography in Materials Science. Due to the very similar topics, a discussion started about combining the annual workshops of the previously mentioned sections of the DMG and DGK. Afterwards, several young scientists from the Helmholtz-Zentrum Berlin (HZB) gave an overview on the synthesis and microstructural analysis of thin films used in photovoltaic

Participants in the 2014 CPKM/AMiTU workshop



cells. Subsequently, students from the University of Göttingen gave an introduction to the analysis of pressure-induced phase transitions and the behavior of microalloys. After a short break, students from the University of Jena and LMU Munich presented their studies on the chemistry of crystals, hydrothermal phase relations, and the Raman spectroscopy of sodalites, which were followed by interesting talks from students from the universities of Tübingen and Leipzig about non-destructive XRD, XRF, and thermal analysis. The lectures of the first day were complemented by an excellent plenary talk given by Helmut Mayer (Friatec AG Mannheim) about oxide ceramic materials for high-performance products.

On the second day, the topics of the talks were again diverse and very fascinating. Students from the University of Würzburg, the University of Tübingen, and the Federal Institute of Materials Research and Testing (BAM) in Berlin presented their results from the high-resolution in situ analysis of the hydration of bassanite, cementitious materials, and glasses. The lectures closed with topics related to geoscience, environmental science, and materials science.

The next workshop is expected to be held at the end of February in 2015. Please mark your calendar accordingly. I hope to see you next year!

Moritz-Caspar Schlegel
(Helmholtz Zentrum Berlin)

International Diamond School

THE NATURE OF DIAMONDS AND THEIR USE IN EARTH'S STUDY

Bressanone-Brixen (Italian Alps)
27-31 January 2015



FIRST ANNOUNCEMENT

The school will provide a general overview of the most recent advances in diamond research as well as an introduction to modern techniques for diamond exploration.

Committed speakers:

Steven Shirey (geochemistry, Carnegie Institution Washington) - **Graham Pearson** (geochemistry, University of Alberta) - **Andy Davy** (diamond exploration, Rio Tinto) - **Dan Frost** (petrology, Bayerisches Geoinstitut) - **Pierre Cartigny** (geochemistry, Institut de Physique du Globe de Paris) - **Jeff Harris** (geochemistry, mineralogy, University of Glasgow) - **Ross Angel** (mineral physics, University of Padova) - **Mike Walter** (petrology, University of Bristol) - **Bruce Kjarsgaard** (diamond exploration, Geological Survey of Canada) - **Frank Brenker** (mineralogy, University of Frankfurt) - **Paolo Nimis** (petrology, University of Padova) - **George Read** (diamond exploration, Shore Gold) - **Matteo Alvaro** (mineral physics, University of Padova)

International organizing committee:
Fabrizio Nestola (University of Padova, Italy)
Steven Shirey (Carnegie Institution, Washington DC, USA)
Graham Pearson (University of Alberta, Canada)

For more information:
www.indimede.eu/diamond_school_2015.htm

