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LETTER FROM THE PRESIDENT



Astrid Holzheid

Dear members of the DMG and colleagues,

Today I would like to draw your attention to upcoming annual meetings of our society. Our well-balanced mixture of independent meetings and joint meetings with national and international geosocieties sets seeds to broad collaborative research—nationwide and international. This year's DMG annual meeting was held in Jena on 21–24 September. The following meetings will be joint meetings with other national and international geosocieties. In October 2015 we will meet in Berlin together with other German geosocieties,

and in September 2016 the second European Mineralogical Conference will take place in Rimini, Italy. Ten European mineralogical societies met together at the first EMC in 2012 at the Goethe-University of Frankfurt, Germany, and the second EMC will again be a joint venture of several European mineralogical societies. After our annual meeting in 2016 with other European societies, the DMG meeting will return to a German university. The geoscientists at the University of Bremen have volunteered to organize the meeting in 2017.

As the October issue of *Elements* will be in press before the annual DMG meeting in Jena, I wish us all an inspiring meeting in Jena.

In the final 2014 issue of *Elements*, we will inform you about the meeting and its highlights!

Astrid Holzheid, DMG President

APPLICATIONS OF SOLID STATE NMR SPECTROSCOPY

Every late spring, the short course entitled Application of Solid State NMR Spectroscopy in Mineralogical and Geoscientific Research takes place at the Institute of Geology, Mineralogy and Geophysics at the Ruhr University Bochum (RUB). This year's course was held on 10–13 June 2014.

Promoted by the Deutsche Mineralogische Gesellschaft (DMG) together with the Deutsche Gesellschaft für Kristallographie (DGK), the short course was headed by Dr. Michael Fechtelkord, lecturer in crystallography and mineralogy at RUB. Through lectures, exercises, and laboratory sessions, Dr. Fechtelkord gave a comprehensive introduction to the fundamentals of NMR spectroscopy.

Owing to its great popularity among master's and PhD students in the geosciences and related disciplines, the course took place for the 14th time and attracted 15 participants from various universities (Oldenburg, Berlin, Hannover, Münster, Mainz, Erlangen, and Vienna) as well as local students from RUB. The participants consisted of undergraduate, master's, and PhD students in the geosciences with varying specializations in mineralogy, petrology, and crystallography.

Due to a thunderstorm the night before the first day of the short course, the entire public transportation system was limited in the region. Thus, it took up to early in the afternoon until the crew of enthusiastic geoscientists was fully assembled at RUB. Each course day started with a theoretical lecture, followed by NMR experiments with the NMR spectrometer (Bruker ASX 400) in the afternoon. The analysis of spectra from the experiments completed the day. Within this framework of experiment combined with spectral evaluations, it was possible to give participants with different levels of prior knowledge an introduction to the routine NMR techniques and to the latest developments in the method.



Participants in the 2014 NMR short course; in front, Dr. Michael Fechtelkord (Ruhr University Bochum), who led the short course

The first day started with the theoretical basics of NMR spectroscopy, including an overview of the technical construction and physical theory of NMR, such as the interactions of atomic nuclei with the gyromagnetic moment within the external magnetic field. After a refreshing coffee break, a detailed introduction was given into the principles of ¹H spin-lattice relaxation followed by measurements of the spin-lattice relaxation time constants for tetramethylammonium iodide at various temperatures. The measurements allowed the calculation of the activation energies of the methyl groups from tetramethylammonium iodide. Later, the traditional icebreaker party took place at the "Summa Cum Laude," which was one of the social highlights.

In the morning of the second day, an extended theoretical lecture included the chemical shift, the "magic angle spinning" (MAS) process, and the magnetic dipolar interaction. In the afternoon, the DMNT 2010 software was used to give an introduction into spectral analysis. As an exercise on the NMR spectrometer, the group recorded data on minerals containing ²⁹Si, ¹⁹F, and ¹H. These data were also analyzed with DMNT 2010. Later on, another special social highlight—dinner and bowling—followed in the restaurant VuKo's.

On Thursday, the theoretical aspects of the *Hahn'sches* echo and certain multi-pulse techniques, e.g. the cross polarization technique (CPMAS) and its application to a kaolinite sample (implying calculations of H–Si distances), were the main focus of the day. After a long afternoon interpreting the data from this day's experiment, some participants watched the World Cup opening ceremony in Brazil in the pub district of the city, the so-called Bermuda Triangle.

The last workshop day was dedicated to quadrupolar nuclei. In this context, the most recent methodological developments in solid state NMR spectroscopy, such as double rotation (DOR) and multi-quantum magic-angle spinning (MQMAS), and satellite transition spectroscopy (SATRAS) were also presented. The short course ended with a brief, fruitful discussion.

We thank Dr. Fechtelkord for his commitment to the success of the course.

Katharina Klang (Münster), **Dominik Zimmer** (Mainz), and **Christopher Neun** (Mainz)

RADIATION DAMAGE IN STRUCTURES: RELEVANCE FOR NUCLEAR WASTE DISPOSAL

Several leading, international experts in the fields of radiation damage in materials and nuclear waste management participated in the workshop at the Mineralogisch-Petrographisches Institut at the University of Hamburg (13–14 July 2014), supported by the Körber Foundation. The speakers from Stanford, Vancouver, Cambridge, Amiens, Xi'an, Jülich, Hannover, Kiel, and Hamburg gave overviews on these highly topical themes. The contents of the talks were wide ranging, from strategies of plutonium disposal and immobilization of long-lived iodine, through radiation damage in minerals and radionuclide solubility control, to the crystal chemistry of actinide-containing materials and layered nanomaterials with applications in radioactive waste treatment. Further insights into the theoretical approach to the damage mechanism, nuclear waste management-related research using computational techniques, and the determination of the degree of damage were given. Thanks to all participants for a successful workshop and fruitful discussions.

Tobias Beirau (University of Hamburg)



Participants: (back row, left to right) Boriana Mihailova, Evgeny Alekseev, Wulf Depmeier, Piotr Kowalski, Peter Zietlow, Ulrich Bismayer, Rodney Ewing, Clemens Walther, Dirk Bosbach; (front row,

left to right) Anja Thust, Antje Hirsch, Ekhard Salje, Pierre Tolédano, Lee Groat, Tobias Beirau, Ming Zhang. PHOTO: KRISTOFF SVENSSON

JOINT MEETING OF DMG PETROLOGY/PETROPHYSICS AND GEOCHEMISTRY SECTIONS

The joint meeting of the DMG Petrology/Petrophysics and Geochemistry sections was held in the Leibniz-Haus in Hannover on 27–28 June. German and international society members from Italy, England, Switzerland, and the United States attended the meeting, with over 120 participants in total. Thirty-five talks and thirty-one poster presentations underlined the diverse and comprehensive scientific program, notably with numerous contributions from students.

Many studies focused on the chemistry of minerals, fluids, and melts; phase equilibria; reaction mechanisms; kinetics; and isotope studies. However, advances in analytical and experimental methods and studies on solubility, diffusion, and geochronology were also presented. In all, the program was a well-balanced mixture of field studies, experimental work, and modeling approaches. The lively discussions stretched the given time slots every now and then; however, generously scheduled poster sessions allowed for continuous discussions.

The traditional barbecue was held on Friday night, along with the geosciences summer party. Many took the opportunity to catch up with old friends or to make new contacts. Starting with a suckling pig, side dishes, and salad, the program offered live music and lab tours and ended with dancing and a tombola.



On Saturday, the program continued until late afternoon, and awards for the best talks and posters were given. The meeting ended with positive feedback for the organizers. Thanks go to Harald Behrens and Stefan Weyer, who were supported by Robert Balzer, Tobias Just, Kristina Schimettzek, Christoph Schubert, Annika Brüske, Yvonne Röbbert, and Florian Kiesel, for the perfect organization. Also, the positive comments were likely due in part to numerous topical overlaps between petrology/

An interested audience at the meeting of the Petrology/Petrophysics and Geochemistry sections in Hannover. PHOTO: NADIA PIERAU

petrophysics and geochemistry. Therefore, a two-day joint meeting with both subgroups is already scheduled for 26–27 June 2015 at the Deutsches GeoForschungsZentrum in Potsdam.

Christopher Giehl (Kiel)