



# Mineralogical Society of America



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## PRESIDENT'S LETTER



Rebecca Lange

It is a pleasure and privilege to accept the gavel and follow in the footsteps of our outgoing President, Steve Shirey. I have long been inspired by the myriad activities of the Mineralogical Society of America, including: (1) our outreach and education programs, which include Mineralogy4Kids, the MSA Distinguished Lecturer Program, the Crystal Structure Database, the Collector's Corner, and the MSA-Talk forum, to name but a few; (2) our sponsorship of short courses and workshops; (3) our awards and grants programs, including the MSA Undergraduate Award and the student

research grants in crystallography and mineralogy/petrology; (4) our wide variety of publications, including several textbooks (check out the new interactive *Mineralogy and Optical Mineralogy* textbook App on the MSA website), the *Reviews in Mineralogy and Geochemistry* series, *Elements* magazine, and our flagship journal, *American Mineralogist*. I was doubly inspired to learn this year that 87% of our members are actively engaged in the stewardship of the MSA through their service on a wide variety of MSA committees and appointed posts, on editorial duties for our publications, as authors, as short course and workshop participants, and as officers. Thank you to everyone for this service and engagement in our community!

Increasingly, mineralogy is playing an ever more significant role in various research advances being made in Earth, planetary, and environmental sciences. Often, it is the extraction of critical information archived in *minerals* that is underpinning new insights into the origin of life and the origin and evolution of habitable planets, including Earth. Within my research area, magmatism and volcanism, I am only too aware of the advances being made in geochronology, trace-element partitioning and diffusion, thermometry, barometry, and hygrometry (to name just a few tools of our trade), all of which are mineral-based applications. Mineralogy also plays a vital role in issues relating to sustainability, the extraction of natural resources, and the mitigation of environmental hazards. Thus, mineralogy is very much alive and vibrant as a discipline, and its importance only grows as the Earth, planetary, and environmental sciences become increasingly interdisciplinary in approach.

An example of the depth and breadth of mineralogy's reach into various subdisciplines of Earth and planetary sciences is demonstrated by our awardees and medalists. For example, Nick Tosca (Associate Professor of Sedimentology at the University of Oxford, UK) won the 2015 MSA Award, and his work on diagenetic minerals showed what can be deduced regarding the longevity of surface waters on Mars and the redox of past oceans on Earth. Equally, Patrick Cordier (Professor at Université Lille, France), who was awarded our Dana Medal, has unveiled what minerals can tell us about galaxies, planets, and the center of the Earth. The research activities of next year's MSA awardee, Anat Shahar, and Dana medalist, Sumit Chakraborty, will similarly showcase the vitality of mineralogy in the Earth and planetary sciences (stay tuned for more news on the 2016 awardees and medalists in upcoming issues of *Elements*).

The societal relevance of mineralogy, and its impact on environmental issues, is very much on display with the research activities of our 2015 Roebbling medalist, Professor Rodney Ewing (Stanford University, USA). His research on radiation effects in complex ceramics has led to his deep involvement, at the science-policy interface, with issues relating to nuclear energy, weapons, and waste disposal. Next year's Roebbling medalist, Robert (Bob) Hazen (Carnegie Institution for Science,

Washington DC, USA), has also made substantial contributions of societal relevance, not least of which is his creation of the Deep Carbon Observatory, an international program to study carbon sequestration and cycling in the Earth (see upcoming issues of *Elements* for more news of this 2016 award). Note that the Roebbling Medal, the MSA's highest honor for research excellence, is not focused on societal relevance; it is, therefore, very significant that the research work from these two Roebbling medalists has also contributed to society at large.

And now on to some formal MSA business. First, I want to extend a hearty thanks to outgoing president, Steve Shirey, outgoing secretary, Andrea Koziol, our treasurer, Howard Day, all our 2015 councilors (Isabelle Daniel, Kirsten Nicolaysen, Ed Grew, Wendy Panero, Abby Kavner and Matt Kohn), Past-president David Vaughan, and most especially to executive director Alex Speer, for all that they have done to strengthen the MSA in recent years. I'm pleased that Steve will continue to work with us closely in the coming year as past-president, especially with his Minerals Matter initiative. Not enough can be said to express our immense gratitude to Alex Speer, who was just awarded the MSA Distinguished Public Service Award at the 2015 GSA meeting in Baltimore (Maryland, USA). I had the privilege last year, as incoming vice-president, to read the dossier for Alex Speer's nomination. What I found was an outpouring of appreciation from a whole host of past-presidents for Alex's inspiring vision, commitment, leadership, pragmatism, savvy, attention-to-detail, and sheer hard work that he brought to MSA. I also want to extend a warm welcome to incoming vice-president George Harlow, secretary Bryan Chakoumakos, and councilors Rajdeep Dasgupta and Peter Nabelek. Two main business issues that will be at the forefront in the coming year are plans to consider launching an electronic data journal and our on-going membership drive. Stay tuned for more news on these topics in coming issues of *Elements*.

**Rebecca Lange** (becky@umich.edu)  
2016 MSA President

## NOTES FROM CHANTILLY

- MSA Council decided on the 2016–2017 award recipients at the 2015 Annual Meeting in Baltimore. The Roebbling Medal is awarded to Robert M. Hazen of the Geophysical Laboratory, Carnegie Institution for Science (Washington DC, USA); the Dana Medal (for 2017) to Sumit Chakraborty of the Ruhr-Universität Bochum (Germany); and the MSA Award to Anat Shahar, Geophysical Laboratory, Carnegie Institution for Science (Washington DC, USA). Fellows newly elected in 2015 are Leonid Y. Aranovich, Wendy A. Bohron, Maria Luce Frezzotti, Michael O. Garcia, Grant S. Henderson, Jung-Fu Lin, Anhuai Lu, Suzanne A. McEnroe, Keith Daniel Putirka, Chrystelee Sanloup, Michael Schindler, Robert P. Wintsch, and Chen Zhu.
- The 2016 recipients for the research grants in mineralogy and petrology from MSA's Mineralogy/Petrology Research Fund are: Niklas Martin Stausberg (Aarhus University, Denmark) for his study "Determination of Fe isotope fractionation factors between immiscible silicate melts under controlled laboratory conditions"; and to Margo Regier (Arizona State University, USA) for her study "Quantifying the crust to atmosphere nitrogen flux through melt inclusions."
- The 2016 recipient for the research grant in crystallography from the Edward H. Kraus Crystallographic Research Fund is Dr. Amy Elizabeth Hofmann, Franklin & Marshall College (Lancaster PA, USA) for "An AFM investigation of the synergistic or antagonistic effects of two disparate impurity species on the kinetics of calcite growth."

**J. Alex Speer**, MSA Executive Director  
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## MSA/DMG DIFFUSION MODELING WORKSHOP – MEETING REPORT

### Overview

Between August 24 and August 28, 2015, participants from 11 countries convened at the Institute for Geology, Mineralogy and Geophysics at Ruhr University (Bochum, Germany) to attend a workshop on the application of diffusing modeling to calculate timescales of geologic processes. The workshop was organized by 16 scientists and alumni from the university and the 37 participants ranged from new graduate students to professors.



Participants of the Diffusion Modeling workshop in Bochum (Germany)

### Motivation

The workshop was motivated by the desire to let researchers expand their understanding of the duration of geologic processes through documenting kinetic information in minerals and melts. Given the growing interest in this topic, the course content covered the technical aspects and considerations for determining such timescales from chemical concentration data in geologic materials, as well as recent innovations and case studies.

### Highlights

The workshop was structured as a series of lectures, which covered the application of diffusion theory to geologic materials, and practicals, during which the participants learned to calculate diffusive timescales using progressively more complex and rigorous techniques, starting with simple error function calculations in Microsoft Excel, and graduating to numerical solutions to the diffusion equation coded into Matlab. These practicals allowed course participants to “learn by doing.” This approach was an important reason the course was so well received as everyone was able to advance their confidence in the practical application of the techniques in five short days. Tours of the research facilities at the university—including the experimental laboratories, Rutherford backscattering facilities, and the nuclear resonance analysis facilities at the beamline—added another important dimension to understanding diffusion research.

Another highlight was the participation of undergraduate and graduate students from Ruhr Bochum in the organization and teaching of the course. Not only did we learn from seeing the cutting-edge research and techniques they were employing, but the local students also got to

experience the interest and excitement that we had in their research. In particular it was a pleasure to see so much young talent with bright futures in science ahead of them.

A poster session allowed the workshop participants to discuss their many different applications of kinetics to geologic problems, as well as get to know one another. The workshop activities culminated on Thursday night with a festive workshop dinner where geologic discussions in many languages continued late into the evening.

This excellent workshop offered something for everyone in the form both of new knowledge of diffusive processes and in making new connections in the scientific community. In my case, I walked away from the workshop with a renewed appreciation of the electrical and the chemical potentials that drive diffusion, new ideas for how to teach diffusion in geologic materials, new research projects, and new collaborations. I wish to thank the conveners, DMG and MSA for five extremely stimulating days!

**Christy B. Till** (workshop participant)  
Assistant Professor  
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The 2016 sixteen-month calendar showcases birthstones. Just over a century ago, Tiffany & Company gemologist George Frederick Kunz (a friend of the then-newly established MSA), published *The Curious Lore of Precious Stones* (1913), in which he wrote on birth, or natal, stones. In the year before the publication of Kunz's treatise, the National Association of Jewelers met in Kansas City (Missouri, USA) and approved a list of birthstones. Although Kunz was critical of tampering with the birthstone tradition, the Kansas City list is now widely adopted. The Kansas City list, with some minor changes is the one with which most people are familiar: but it is Kunz's compilation, and it recalls the basis for the original birthstones, which are the ones featured in the 2016 calendar. Published by Lithographie, LLC, in cooperation with MSA, it is available from MSA at [www.minsocam.org](http://www.minsocam.org).

## IN MEMORIAM

ROCK H. CURRIER – Sustaining Member (1991)

ALAN T. PRINCE – Senior Fellow (1959)