Meet the Authors

Alex N. Halliday was recently appointed to the Chair of Geochemistry at the University of Oxford where he moved from ETH Zurich. In the past he has engaged in a broad range of isotope geochemistry research, in particular in silicic magmatism, crustal fluid flow, lower crustal processes and mantle geochemistry. More recently however his interests have broadened to the origin and early differentiation of the terrestrial planets and large-scale surface processes such as ocean circulation. An underlying research theme has been the development and use of new isotopic methods. He is involved in a wide range of scientific organizations.

Photo: D. Jalufka

Christian Koeberl is a professor of geo- and cosmochemistry at the Department of Geological Sciences, University of Vienna, Austria. He studied chemistry and astronomy at the Technical University of Vienna and the universities of Vienna and Graz, where he finished his PhD in 1983 in cosmochemistry. In the 1980s and 1990s he was a visiting scientist at the Lunar and Planetary Institute, Houston, and at the Carnegie Institution of Washington. For the past 20 years the study of impact craters and processes has been one of his main research interests. He has published about 280 peer-reviewed papers and written or edited nine books.

Allen Nutman's interest in early Archean geology has spanned three decades, starting with his late 1970s PhD work (at the University of Exeter, UK) on rocks of Archean age in West Greenland. Since the late 1980s he has been based primarily at the Australian National University, where he works at the SHRIMP facility in the Research School of Earth Sciences. He has worked extensively on the early Archean rocks of West Greenland and Western Australia, and has also undertaken research on similarly old rocks from Labrador and China. His approach is to integrate field observations, mapping and geochemistry with zircon geochronology.

J. William Schopf is director of the Center for the Study of Evolution and the Origin of Life and member of the Department of Earth and Space Sciences at the University of California–Los Angeles. He received his undergraduate training in geology at Oberlin College and his PhD degree in biology from Harvard University. Author or editor of three prize-winning volumes on the early history of life, his prime research interest, Professor Schopf is a member of the National Academy of Sciences, the American Philosophical Society, and the American Academy of Arts and Sciences. Recipient of numerous medals and awards, he has twice been awarded a Guggenheim Fellowship.

John W. Valley, Charles R. Van Hise Professor of Geology at the University of Wisconsin–Madison, received his AB from Dartmouth College and PhD from the University of Michigan (1980). He maintains a mass spectrometer lab for stable isotope geochemistry and in 2005 installed a CAMECA IMS-1280 ion microprobe for in situ analysis of ultrasmall samples. His interests in the early Earth and in the thermal and fluid history of mountain belts span 30 years. Currently, he is president of the Mineralogical Society of America.

Kevin Zahnle is research scientist at NASA's Ames Research Center located in California's Silicon Valley. He attended McGill University and the University of Michigan. Then he moved to California. He has studied atmospheric chemistry, atmospheric escape processes, and asteroid and comet impacts on planets and satellites. Zahnle has contributed film reviews to *Nature* and has appeared on TV as Godzilla in NHK's "Miracle Planet II."

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Cutting back the role of optical mineralogy in the geosciences curriculum needs to be carefully reconsidered—especially by those departments contemplating elimination of the program altogether. Given the present state of affairs, however, it is unlikely that optical mineralogy will be reinstated to a full semester course of instruction. The best alternative is to integrate it as much as possible with the entire range of mineralogy, petrology, and analytical courses, rather than simply relegating optical work to a few lectures and laboratory sessions. This approach might be the best means of conveying the versatility of this powerful technique to future generations of geoscientists.

Daniel Kile
Scientist Emeritus,
U.S. Geological Survey

WATCH FOR OUR NEXT ISSUE

Glasses and Melts: Linking Geochemistry and Materials Science

GUEST EDITORS: Grant S. Henderson (University of Toronto), Georges Calas (IMPMC and Université de Paris 6 et 7), and Jonathan F. Stebbins (Stanford University)

Geological interest in studying melts stems from early recognition that melts play a fundamental role in determining the physical and chemical behaviour of magmas. However, due to the inherent difficulties associated with working at high temperatures, much of the geological research over the last 30 years has used quenched melts or glasses as proxies for melts themselves. The assumption that the structure of the glass resembles that of the melt has been found to be good, at least at the temperature where the melt transforms to a glass. We will review how glass research has contributed to our understanding of melt structure and the behaviour of magmas. Emphasis is placed on elucidating the links between our knowledge of the atomic structure of melts and the macroscopic behaviour of magmas such as rheology, diffusion, trace element partitioning and redox behaviour.

The structure of silicate glasses and melts
Grant S. Henderson, Georges Calas, Jonathan F. Stebbins

Geochemical aspects of melts: Volatiles and redox behaviour
Harald Behrens (University of Hannover)

Transport properties of magmas: Diffusion and rheology
Donald B. Dingwell (University of Munich)

Dynamics of magmatic systems
Bruce D. Marsh (Johns Hopkins University)

Geological glasses as Earth and industrial materials
Laurence Galoisy (Institut de minéralogie et de physique des milieux condensés and Université de Paris 6 et 7)