

Meet the Authors



Harald Behrens is a researcher at the Institute for Mineralogy at the University of Hannover. After studying physical chemistry, he switched over to the fields of experimental petrology and geochemistry. One of

his major interests is the interaction of volatiles with silicate minerals and melts. Structure and properties of glasses and melts, kinetic processes in magmatic and metamorphic systems, and weathering reactions of minerals and rocks are other research interests. Although he is working mainly as an experimentalist, more than 80 published papers demonstrate his ability to apply experimental studies to various problems in geoscience and materials science.



Georges Calas is a professor of mineralogy at the Université Paris VI and deputy director of the Institute of Mineralogy, Universités de Paris VI et VII, Institut de Physique du Globe de Paris and CNRS.

He is affiliated with the Stanford Environmental Molecular Science Institute. His research focuses on how the molecular-scale organization of minerals, glasses and melts controls their properties. He applies his research in the Earth and environmental sciences and materials sciences by using a combination of solid-state spectroscopic methods, X-ray and neutron diffraction and numerical modeling. A former president of the Société française de Minéralogie et Cristallographie, he is a Fellow of the Mineralogical Society of America.



Donald B. Dingwell received his BSc (1980) in geology and geophysics from the Memorial University of Newfoundland and his PhD in geology at the University of Alberta (1984). After two years as a Carnegie Research

Fellow at the Geophysical Laboratory and one year at the University of Toronto, he became the assistant director of the newly founded Bavarian Geo-institute. In 2000 he was appointed to the Chair in Mineralogy and Petrology at the Ludwig-Maximilians-University of Munich. Dingwell's principal research interest is the physicochemical nature of molten rocks and their impact on volcanic systems. For his scientific contributions, he has received awards and prizes from the German Mineralogical Society (DMG), the German Research Society, and the Mineralogical Society of America (MSA).



Fabrice Gaillard has been carrying out research at ISTO, CNRS, Orléans, France, since January 2005. His current research interests center on volatiles and magmas, with specific applications to redox

equilibria in the early solar system and the effect of volatiles on the geophysical properties of magmas. From 1998 to 2004, at Orléans and at the Bayerisches Geoinstitut, Bayreuth, Germany, he studied redox processes in silicate glasses and melts, with most of his work focused on the thermodynamic properties of redox equilibria involving iron in hydrous amorphous silicate and, later, on the transport properties of water-derived species and electrical conductivity as functions of pressure and temperature. His expertise is largely inherited from the continual experimental and conceptual developments at Orléans led by M. Pichavant, B. Scaillet and J. Roux.



Laurence Galois obtained her PhD in geochemistry from the Université de Paris VII (1991). After a one-year postdoctoral position at Stony Brook University at the CHIPR center, where she studied the olivine-spinel transition in the mantle (1992), Laurence Galois became an associate professor at the Paris VII «Denis Diderot» University (1993). She conducts her research at the Institute of Mineralogy and Physics of Condensed Matter (Paris). Laurence Galois focuses her work on the relations between structure and properties in industrial and natural glasses, minerals, and archeological glasses and glass ceramics. She uses various spectroscopic methods under in situ conditions (optical spectroscopy, X-ray absorption spectroscopy) and microscopy techniques.



Grant Henderson is a professor in the geology department at the University of Toronto. He studied geology and chemistry at the University of Auckland, New Zealand, and the University of Western

Ontario, Canada. He has been interested in the structure of glasses as it applies to geological melts since the early 1980s. His current research emphasizes the use of synchrotron-based spectroscopic and diffraction techniques to elucidate the structure of silicate and germanate glasses. He is particularly interested in the coordination and medium-range structure changes responsible for variation in physical properties.



Bruce Marsh is interested in all the physical and chemical aspects of the generation, extraction, collection, ascension, emplacement, and eruption of magma. He enjoys blending field geology with

complementary laboratory experiments and theoretical analyses. At the same time, he maintains a keen appreciation of the people, history, and art of doing science in all fields of natural science and exploration. He was born and raised in the woods of the Upper Peninsula of Michigan and received his education in geology, geophysics, and geochemistry at Michigan State (BSc), Arizona (MSc), and Berkeley (PhD). He has been on the faculty at Johns Hopkins University since 1974. His present principal field areas are the McMurdo Dry Valleys of Antarctica and the Sudbury impact feature.



Jonathan Stebbins did his undergraduate studies at Harvard University, where he focused on geochemistry and petrology, then went on to the University of California Berkeley for his PhD. There,

working with Ian Carmichael, he did experimental measurements of thermodynamic properties of silicate melts. By good luck and the proximity of Alex Pines in the UCB chemistry department, he learned about NMR spectroscopy and since then has applied this technique as his major research tool in elucidating the structure and dynamics of silicates and other inorganic materials. He has been on the faculty at Stanford University, in the Department of Geological and Environmental Sciences, since 1985.