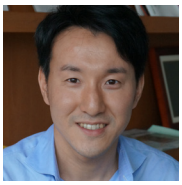
Meet the Authors

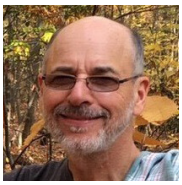
Penelope J. Brothers is a New Zealander educated at the University of Auckland (New Zealand) and Stanford University (California, USA). She has been a professor in the School of Chemical Sciences at the University of Auckland since 1988 and has been a visiting professor at several institutions, including both the Davis and Berkeley campuses of the University of California (USA), the University of Heidelberg (Germany), the University of Münster (Germany), the University of Burgundy (France), the Peking University (China), and the Arctic University of Norway. Penelope was a Fulbright Senior Scholar at Los Alamos National Laboratory (New Mexico, USA) and is an Associate Editor of *Chemical Communications*. She is currently investigating the chemistry of boron coordinated to porphyrin and corrole ligands, boron dipyrrin (BODIPY) fluorophores for sugar recognition, and surface patterning using molecular pentagons.



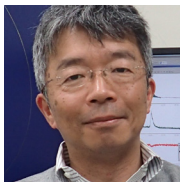
Yoshihiro Furukawa is an assistant professor in the Department of Earth Science at Tohoku University (Japan). He received his PhD from Tohoku University and has worked there ever since. His research focuses on the prebiotic formation of life's building blocks, such as sugars, amino acids, and nucleobases. In particular, he has investigated the interactions between ribose and borate. He is also working on abiotic molecular organization and polymerization to form bio-important polymers. In 2014, as a visiting international scholar, he investigated abiotic RNA formation at the Foundation for Applied Molecular Evolution (Florida, USA).

Edward S. Grew is a research professor at the University of Maine (USA). He received his BA from Dartmouth College (New Hampshire, USA) and in 1971 earned a PhD from Harvard University (Massachusetts, USA). He participated in nine expeditions to Antarctica supported by the US, the former Soviet Union, Japan, and Australia. He was a Fulbright Scholar at the University of Melbourne (Australia) and a Humboldt Fellow at the Ruhr University (Bochum, Germany). He has studied granulite-facies borosilicate assemblages in East Antarctica, Adirondack Mountains (New York, USA), South India, and the Aldan Shield (Siberia, Russia), as well as boron isotopes in Antarctic borosilicates and Eoarchean tourmaline from Greenland. He edited the Mineralogical Society of America's Reviews in Mineralogy & Geochemistry volumes on boron (v33) and beryllium (v50) and has collaborated with Robert M. Hazen on the mineral evolution of these elements. In 2015, he was awarded the Collins Medal by the Mineralogical Society of Great Britain and Ireland.

Cahit Helvacı received his PhD in geology from the University of Nottingham (UK) in 1977. He was a member of Ege University (Turkey) from September 1977 to 1982, and since then has been at Dokuz Eylül University (Turkey). His primary research interests are on recent and ancient evaporites, the role of evaporites in the formation of large-scale ore deposits, hydrothermal systems, sedimentary and volcanic rocks, and related industrial raw materials. Helvacı's life-long study of borate minerals has resulted in a better understanding of the origin if such minerals, backed up by mineralogical, sedimentological, petrographic, and isotopic studies.



N. Gary Hemming is a geochemist working on the development and application of boron isotopes in marine carbonates as a proxy for the paleo-pH of the oceans and applying this method to paleoclimate studies. He developed an improved method for boron isotope analyses as a student at the Department of Earth and Space Sciences at Stony Brook University (New York, USA), where he received his PhD in 1995. He was one of the first to recognize the potential for using the offset in boron isotopes between minerals and fluids as a paleo-pH probe. He went on to the Lamont-Doherty Earth Observatory of Columbia University (New York, USA) as a post-doc in 1995 and continues there as an adjunct research scientist. He has been a professor at Queens College CUNY (USA) since 1999, and is also a visiting professor at Stony Brook University.



Takeshi Kakegawa is Professor of Geochemistry at Tohoku University (Japan). He received his BS in mineralogy, petrology, and economic geology from Tohoku University and his PhD in geochemistry from Pennsylvania State University (USA). His research interests include experimental studies on the origin of life, Precambrian geology, tracing life in early Archean rocks, biological elemental cycles on the early Earth, biogeochemistry and biomineralization in terrestrial and submarine hydrothermal systems, petroleum genesis in diatomite, and submarine hydrothermal processes on ancient and modern ocean floors.

Martin R. Palmer has been Professor of Geochemistry at the University of Southampton (UK) since 2000. After studying for a BSc in chemistry at the University of East Anglia (UK), he received his PhD in geochemistry from the University of Leeds (UK) in 1985. He first started working on boron isotopes as a tracer of geological processes while a post-doc at the Massachusetts Institute of Technology (USA) in 1987. Since that time, he has applied this tracer to a wide variety of processes, including paleoceanography, non-marine evaporites, tourmalines from granites and ore deposits, and island arc petrogenesis. His present boron isotope project involves working with Yalçin Ersoy and Cahit Helvacı from Dokuz Eylül University (Turkey) to use boron isotopes in volcanic rocks from western Anatolia (Turkey) to gain an insight into crustal formation and recycling processes during continental collision.

E. Troy Rasbury received her PhD in geosciences from Stony Brook University (SBU) (New York, USA) in 1998. She was on the faculty at Queens College CUNY (USA) from 1998 to 1999 before returning to Stony Brook University as a faculty member in 1999. She is also a member of the Interdepartmental Doctoral Program in Anthropological Sciences at SBU. She specializes in isotope and trace element analyses of carbonates. Much of her work has focused on U–Pb dating of carbonates, but she has become increasingly interested in secular evolution of seawater chemistry, particularly how a high-resolution record of boron isotopes might help deconvolve climate and tectonic questions during the Paleozoic.

Charles "Chip" Shearer is an igneous petrologist–geochemist–mineralogist with a focus on the formation and evolution of the terrestrial planets. Chip is a senior research scientist and research professor in the Institute of Meteoritics and Department of Earth and Planetary Sciences at the University of New Mexico (USA). He is currently the deputy principle investigator for NASA's MoonRise mission. The goal of this mission is to reconstruct the timing and planetary-scale effects of the late heavy bombardment of the inner Solar System by returning samples from the South Pole–Aitken Basin on the southern far side of the Moon.

Steven B. Simon received his PhD in geology from the South Dakota School of Mines & Technology (USA) in 1988. He is currently a senior research scientist in the Institute of Meteoritics at the University of New Mexico (USA), having recently relocated there after 28 years at the University of Chicago (Illinois, USA). He investigates the early history of the Solar System through petrologic studies of chondritic meteorites, concentrating on chondrules and refractory inclusions. He is also interested in redox (reduction–oxidation) conditions in the early Solar System and the Moon as recorded by the valences of Ti, Cr, and V in lunar rocks and chondrules.