Meet the Authors

Harald G. Dill studied (economic) geology, mineralogy and geography at the Julius-Maximilians-Universität Würzburg, the Friedrich-Alexander University Erlangen-Nürnberg and the Rheinisch-Westfälische Technische Hochschule Aachen (all three in Germany). He holds a PhD in mineralogy, is a habilitated doctor (Dr. habil.) in economic geology, and is also a Dr. honoris causa. Over a 35-year career, he has worked in soil sciences (University of Bayreuth, Germany), economic geology, applied sedimentology, and technical mineralogy (at the Federal Institute for Geosciences and Natural Resources in Germany) in Hannover and has held a management position with the German Continental Deep Drilling Program. He has worked and taught on six continents. His "paperwork" includes 219 peer-reviewed papers, 101 abstracts and 1 patent. He was awarded the Quintino-Sella Prize at the Geological Congress, Florence (Italy).

Matthew S. Fantle is an isotope geochemist by training and is currently Associate Professor of Geosciences at Pennsylvania State University (USA), where he directs the Metal Isotope Laboratory, a clean laboratory facility that houses a Neptune Plus multiple collector inductively coupled mass spectrometer. He received a BA in Environmental Earth Sciences from Dartmouth College (New Hampshire, USA) and a PhD in geology from the University of California at Berkeley. His research interests revolve around applying stable metal and radiogenic isotope systems to global-scale geochemical cycling, seawater chemical evolution, and the fidelity of geochemical proxies over long time scales. Recent work includes exploring isotopic effects related to mineral precipitation, carbonate diagenesis, and hyperthermal events, oftentimes with the aid of simple numerical approaches.

Emma J. Gagen is a postdoctoral research fellow in geomicrobiology, in the School of Earth Sciences at the University of Queensland (UQ) (Australia). Emma is fascinated by the role that microorganisms play in geochemical processes and is currently investigating the role that microorganisms play in iron cycling systems. Prior to this, she was at the University of Regensburg (Germany) investigating microorganisms in the deep biosphere (below the seafloor). Her PhD was at UQ and was in the area of rumen microbial ecology.

Ryan Mathur is a professor at Juniata College (Pennsylvania, USA). He earned a BA in History and Geology from Juniata College in 1997 and PhD in economic geology and isotope geochemistry from the University of Arizona (USA) in 2000. He has worked on a large variety of ore deposits in many different areas, specializing in the geochronology of sulfide minerals and transition-metal isotope geochemistry, with the ultimate aim of developing new mineral exploration techniques and defining ore-deposit genesis.

Martin Reich is a Professor of Geology at the University of Chile in Santiago. He also holds appointments as Director of the Millennium Nucleus for Metal Tracing (NMTM) and as a Principal Researcher in the Andean Geothermal Center of Excellence (CEGA) at the same institution. He holds a B.Sc. and a professional geologist degree from the University of Concepción, Chile (2001), and a Ph.D. in Geology from the University of Michigan, Ann Arbor (2006). He studies the geochemistry and mineralogy of ore deposits, including their evolution and their links to magmatism, tectonics and climate. He was the recipient of the Society of Economic Geologists (SEG) Waldemar Lindgren Award in 2012.

Devon J. Renock received an MS in chemistry from Bowling Green State University (Ohio, USA) and a PhD in geology from the University of Michigan (UM) at Ann Arbour (USA) in 2010. His dissertation clarified the redox mechanisms that operate on iron- and arsenic sulfide mineral surfaces. After a postdoctorate at UM, he joined the faculty of the Department of Earth Sciences at Dartmouth College (New Hampshire, USA) in 2011. His research now focuses on understanding environmentally relevant processes at the mineral–water interface using a combination of surface-sensitive techniques (microscopic and spectroscopic), electrochemical methods, and molecular simulations.

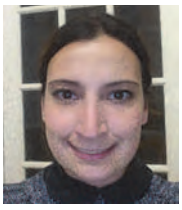
Lindsay C. Shuller-Nickles is an assistant professor of mineralogy and radiogeochemistry in the Environmental Engineering and Earth Sciences Department at Clemson University in South Carolina (USA). She received her PhD in materials science and engineering from the University of Michigan at Ann Arbor (USA), where she was a Department of Energy Office of Civilian and Radioactive Waste Management Fellow. Her research combines experiments and computer simulations to understand the thermodynamic stability and kinetics that control the behavior of radionuclide-containing materials. Dr. Shuller-Nickles is a recipient of the Nuclear Forensics Junior Faculty Award and is part of a team that has been awarded a United States Department of Energy Experimental Program to Stimulate Competitive Research Implementation grant to study radioactive waste disposal.

David L. Shuster is an associate professor at the University of California at Berkeley (USA), where he is investigating the processes that occur at or near terrestrial, Martian, and lunar surfaces using laboratory-based geochemical observations. He is also developing analytical techniques and modeling tools to address these questions. Much of this work utilizes the relatively simple physical behavior of He, Ne, Ar, and Xe to constrain timescales, rates, and temperatures associated with orogenic and planetary processes and with chemical weathering. He is currently quantifying properties such as the diffusion kinetics, production rates, and open system behavior of cosmogenic nuclides. He pioneered $^{4}He/^{3}He$ thermochronometry during his PhD research at Caltech and was awarded the American Geophysical Union's James B. Macelwane Medal.

Jeremiah P. Shuster is a postdoctoral research fellow at the School of Earth Sciences, University of Queensland (Australia). He received his PhD in 2013 from Western University (Canada). Jeremiah mainly researches how bacteria contribute to the biogeochemical cycling of gold, but also investigates what the (micro-)fossil record tells us of modern and ancient environments on Earth. is long-term goal is to fully understand the biogeochemistry of microbe–mineral interactions and how the lithosphere is able to support life.

Gordon Southam is a professor and the Vale-University of Queensland Chair in Geomicrobiology at the School of Earth Sciences, University of Queensland (Australia). His research on bacteria–mineral interactions encompasses microbiology, geochemistry and mineralogy, and has four themes: the role that bacteria play in the bioleaching of metal sulphides; the biogeochemical cycling of iron in near-surface environments (the canga of Brazil); the development of secondary gold (critical to the formation of dispersion halos and novel exploration methods development); and the control of greenhouse gas emissions via bacterial carbonation reactions. To Gordon, this research on life in extreme environments highlights the remarkable role that microbiology plays in many Earth-system processes.

Paulo M. Vasconcelos is a professor of geology at the School of Earth Sciences, University of Queensland (UQ, Australia). He received his BSc from the University of Kansas, his MA from University of Texas at Austin, and his PhD from the University of California at Berkeley (all three USA). At UQ, he built and runs the UQ-AGES facility, a noble gas laboratory that specializes in dating weathering processes, especially processes that operate, or have operated, in Australia, Brazil, and China. Paulo combines field characterization and sampling of supergene ore deposits, mineralogical and chrystallographic investigation of ore minerals, and the development and application of geochronological tools to determine the timing of supergene mineral precipitation.



Carla M. Zammit is a postdoctoral research fellow in the School of Earth Sciences at the University of Queensland (Australia). She researches the use that microorganisms have, or could have, for the mining industry. Such uses include how microorganisms break down sulfidic ores during mine processing (bioleaching); the development of microbial-based sensors for the detection of gold; and the in situ recovery of metals. This research bridges the fields of biotechnology and geology and will help improve mining processes and remediation. As we move towards the future, cost-effective, greener technologies are being sought out by the mining industry and are being met by the ever-expanding field of geomicrobiology.

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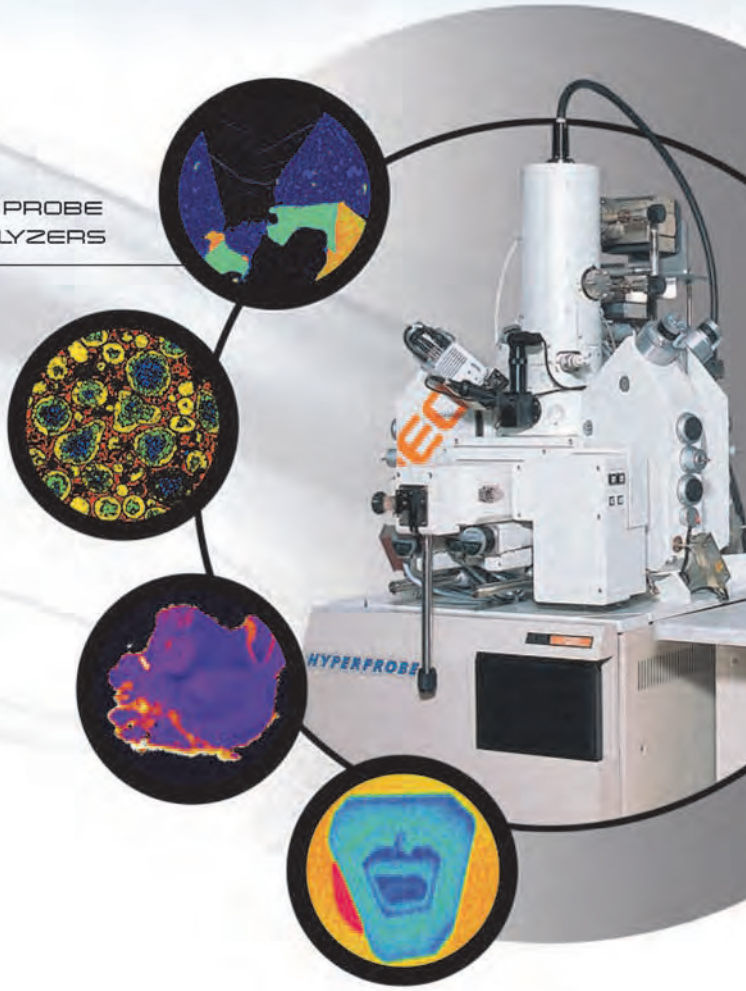

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