

# Meet the Authors



**Robert J. Howell** is Principal Geochemist with SRK Consulting in Cardiff, Wales. He holds a BSc in geochemistry from the University of Manchester and a PhD from Southampton

University. He is a visiting research fellow in geochemical engineering at Cardiff University where his main fields of expertise are the geometallurgy of uranium deposits, the prediction of mine-waste geochemistry, and the recovery of precious and base metals from complex metal ores and mine wastes. He is an active micromounter specializing in gold and sulfide oxidation-product minerals.



**Charles R. M. Butt** has a BA in geology and chemistry from Keele University and a PhD in applied geochemistry from Imperial College, London. He joined CSIRO in Australia in

1971 and is currently a Chief Research Scientist. His principal research interests have been the development of geochemical exploration procedures appropriate to deeply weathered and lateritic terrains, and the genesis of secondary mineral deposits, including those of gold. He was elected a Fellow of the Australian Academy of Technological Sciences and Engineering in 2004 and appointed as a CSIRO Fellow in 2007. He has served as an associate editor of the *Journal of Geochemical Exploration* (1976–1999) and of *Geochemistry: Exploration, Environment, Analysis* (2000–present).



**James S. Cleverley** is a senior geochemist and leader of the Computational Geoscience Group at CSIRO Exploration & Mining in Perth, Western Australia. After completing his BSc at Plymouth

University, MSc at Leicester University and PhD at the University of Leeds, James moved to Australia to take up a postdoctoral position in the Economic Geology Research Unit at James Cook University. In 2006, James moved to CSIRO in Perth where he is applying hydrothermal geochemistry, simulation science and microchemical characterization to our understanding of fluids and dynamics in ore systems. Through his work on IOCG, copper, Archean gold, uranium and sediment-hosted base metal systems, he firmly believes there are ingredients common to all of them.



**Claire M. Coble** graduated with a BS in chemistry from Brown University (2006) and an MS in chemistry from the University of Washington (2007). She is pursuing her PhD in biomedical

engineering with Younan Xia at Washington University in St. Louis. Her research interests include the synthesis, analysis, and applications of metal nanostructures.



**David R. Cooke** received a PhD from Monash University and has researched the characteristics and origins of gold-rich porphyry copper and epithermal deposits throughout the Southwest

Pacific, Australia, and the Americas. He is currently the leader of the "Formation" research program at the Centre for Excellence in Ore Deposits at the University of Tasmania.



**John H. Dilles** received an MSc from Caltech and a PhD from Stanford University. He has worked for Hunt, Ware & Proffett and as an operator of small gold mines with his brother Peter. He is

currently a professor in the Department of Geosciences at Oregon State University. His research focuses on the geology of Cordilleran porphyry copper deposits, magmatic processes that generate hydrothermal fluids, structural geology, isotopic tracers, and geochronology. He is active in the Society of Economic Geologists and chairs the Minerals and Energy Section of NASULGC to advocate for federal support of universities.



**Lintern Fairbrother** holds a BSc (honours) in nanotechnology from Flinders University of South Australia, where he is currently a PhD candidate in the School of Chemistry, Physics

and Earth Sciences. He is also an affiliate at the University of Adelaide and CSIRO Land and Water. Lintern is undertaking an investigation into the formation of gold grains in the Australian regolith with a focus on the bacterial biomineralization of secondary gold. He specializes in focused ion beam scanning electron microscopy (FIBSEM) and inductively coupled plasma mass spectrometry (ICP-MS).



**Jörg Fischer-Bühner** holds a PhD in physical metallurgy and materials technology from the technical university RWTH Aachen, Germany. He is currently active in

research and development for INDUTHERM Erwärmungsanlagen GmbH (Walzbachtal, Germany) and for LEGOR Group Srl (Bressanvido, Italy). Earlier, he was head of the Division of Physical Metallurgy at FEM, Research Institute for Precious Metals and Metal Chemistry (Schwäbisch Gmünd, Germany). His work has included manufacturing support, failure analysis, training, and consultancy to manufacturing companies. His research has focused on alloy properties and manufacturing technologies, especially precious metal alloys for jewellery, dental, and electrical engineering applications.



**Robert M. Hough** is a senior research scientist with CSIRO Exploration and Mining based at the Australian Resources Research Centre in Perth; he joined CSIRO in 2002. He has a BSc in geology

from the University of London and a PhD from the Open University, UK. He now leads an area of frontier research on gold in the Minerals Down Under Flagship. He studies the metal at all scales, from nanoparticles to 8 kg nuggets. His research is aimed at understanding the controls on gold transport and deposition in both high- and low-temperature geological environments, in support of an active gold exploration industry in Australia.



**Maggie F. Lengke** is a senior geochemist at Geomega Inc. in Boulder, Colorado. She received a PhD in hydrogeology from the University of Nevada at Reno in 2001. She has worked as a

postdoctoral researcher at the University of Western Ontario, Canada. Her research interests include environmental geochemistry, biogeochemistry, and nanoscience. Her current work focuses on kinetic mineral dissolution/oxidation models, the development of mine pit-lake and waste-rock models, and the interactions between bacteria and metals or chlorinated organic compounds.



**Artashes A. Migdisov** is a research scientist at McGill University, Canada, where he runs the laboratory in experimental hydrothermal geochemistry. He received his PhD in geology and mineralogy

in 1995 from Moscow State University, Russia, and then held a postdoctoral fellowship at McGill University. His research interests are in the fields of ore-forming processes and fluid–mineral interaction, which he studies through laboratory experiments designed to produce thermodynamic data for modeling equilibria in aqueous fluids and at the surfaces of solids. He has made important contributions to our understanding of the behaviour of the REE in hydrothermal systems and the vapour transport of metals.



**Frank Reith** is a geomicrobiologist at the Centre for Tectonics, Resources and Exploration, School of Earth and Environmental Sciences, University of Adelaide. His research is aimed at understanding

the interactions of microbes and trace metals, especially gold, in the supergene environment. He uses a wide variety of techniques, such as synchrotron microanalysis, electron microscopy, transcriptome microarrays, and metagenomic approaches. After his MSc (Diplom) at the University of Bayreuth, Germany, he moved to Australia, where he received his PhD from the Australian National University in 2006. Since then he has held postdoctoral appointments at CSIRO and the University of Adelaide.



**Gordon Southam** is a professor and Canada Research Chair in geomicrobiology in the Departments of Earth Sciences and Biology at the University of Western Ontario, Canada. His

research on bacteria–mineral interactions encompasses microbiology, geochemistry, and mineralogy. It includes the examination of life in extreme environments, such as the deep subsurface of South Africa (4 km below land surface in the gold mines of the Witwatersrand Basin); the control of greenhouse gas emissions via bacterial carbonation reactions; the bioremediation of inorganic and organic pollutants; and the role of bacteria in the formation of ore deposits, in particular, the biogeochemistry of gold.



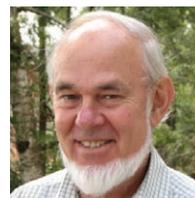
**Richard M. Tosdal** received an MSc from Queen's University (Kingston) and a PhD from the University of California, Santa Barbara. He worked for the U.S. Geological Survey and

most recently was the director of the Mineral Deposit Research Unit at the University of British Columbia. He currently is an independent consultant to the minerals industry and holds an adjunct appointment at the University of British Columbia. His research focuses on the geologic and metallogenic evolution of plate margins and on the structural controls of ore deposition.



**John L. Walshe** is Chief Research Scientist, CSIRO Exploration and Mining, and is based at the Australian Resources Research Centre (ARRC) at Kensington, Perth, Western Australia. Since

joining CSIRO in 1996, he has contributed to developing mineral systems concepts and their application to mineral exploration in the Eastern Goldfields, Western Australia, through the AGCRC (Australian Geodynamics) and pmd\*CRG (Predictive Mineral Deposits) Cooperative Research Centres. His is particularly interested in Earth-scale geochemical systems, their links to mineral systems and the processes of formation of the Earth's giant resources. Prior to joining CSIRO, he lectured in economic geology at the Australian National University, Canberra. He is a graduate of the University of Tasmania.



**Anthony E. (Willy) Williams-Jones** is a professor in economic geology and geochemistry at McGill University, Canada. He received his early education in South Africa, completing BSc

and MSc degrees at the University of Natal. He then immigrated to Canada where he earned a PhD at Queen's University (Kingston) and worked for several years as an exploration geologist. His research, which combines field-based and experimental approaches, focuses on the behaviour of metals in crustal fluids in the context of ore genesis and has been published in over 130 peer-reviewed journal articles. He is an associate editor of several journals and a fellow of the Royal Society of Canada.



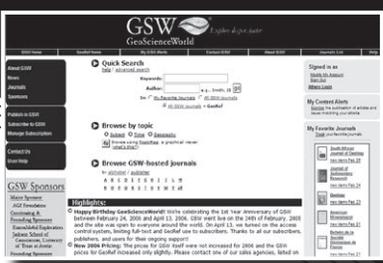
**Younan Xia** received a BS in chemical physics from the University of Science and Technology of China in 1987, an MS in chemistry from the University of Pennsylvania in 1993, and a PhD in

physical chemistry from Harvard University in 1996. He was appointed an assistant professor of chemistry at the University of Washington in Seattle in 1997 and was promoted to professor in 2004. He moved to Washington University in St. Louis in the fall of 2007 and is now the James M. McKelvey Professor of Biomedical Engineering. His research interests include nanostructured materials, nanomedicine, biomaterials, self-assembly, photonic crystals, colloidal science, surface modification, and electrospinning.



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