Meet the Authors

Francis Albarède is a professor at the École Normale Supérieure de Lyon (ENS Lyon, France). He is a geochemist whose broad range of interests include high-temperature geodynamic processes, planetary sciences, and marine geochemistry. He joined the faculty of ENS Lyon in 1991, and he has authored over 225 peer-reviewed papers and written four books. He has received the Goldschmidt Award and is a Fellow of the American Geophysical Union and the Geochemical Society. His Lyon group initially developed the (now standard) multi-collector inductively coupled plasma mass spectrometry technique for isotope analysis, and Francis pioneered the use of copper and zinc stable isotopes. He has also applied isotopic tracers to the fields of archaeology, history, biology, and medicine.

John Barr was born in Scotland, gained a BSc (hons) in geology at the University of Glasgow (Scotland) in 1986 and an MSc in geochemistry from the University of the Witwatersrand (Johannesburg, South Africa) in 1988. He is married and has three adult children. Barr's career is in the mining and exploration business. Initially he worked both as a mine and an exploration geologist, but his career evolved to focus on geochemistry. Currently, he is the leader of the geochemistry group within Anglo American plc. supporting the operating mines and brownfield exploration. He has also worked in generative targeting and greenfield exploration for a wide range of ore types all over the globe.

Rizlan Bernier-Latmani is an associate professor at the Swiss Federal Institute of Technology in Lausanne (École Polytechnique Fédérale de Lausanne {EPFL}, Switzerland). She obtained a PhD from Stanford University (California, USA) in 2001 and followed it up with post-doctoral research at Scripps Institution of Oceanography (California). In 2005, she started as a tenure track assistant professor at EPFL and became an associate professor in 2013. Her research interests span microbe–mineral interactions, with particular emphasis on uranium and arsenic biogeochemical cycling, microbes in the deep subsurface and the metabolism of gut microbes.

Georges Calas is the University Institute of France Chair of Mineralogy at the Université Pierre et Marie Curie, Paris (France). He holds the 2014–2015 Chair in "Sustainable Development – Environment, Energy, and Society" at the Collège de France in Paris. His research interests concern how the molecular-scale organization of minerals and materials controls their properties and what this tells of their conditions of formation. His current interests include environmental mineralogy, materials science, nuclear waste management, cultural heritage, and the sustainable development of mineral resources. He is a Foreign Fellow of the Royal Society of Canada, a member of Academia Europaea, a Geochemical Society Fellow, and a fellow of the Mineralogical Society of America.

Lesley A. Chesson is the President of IsoForensics, Inc., a private analytical services and research firm located in Salt Lake City (Utah, USA) that focuses on forensic applications of stable isotope analyses. She received her BS in biology at Elon University (USA) in 2002 and an MS in biology at the University of Utah (2009). Over the last 12 years, Lesley has used stable isotope forensic techniques to examine documents, drugs, explosives, feathers, foods and beverages, microbes, and water. She has also used the techniques to assist law enforcement via the stable isotope analysis of unidentified human remains.

Max L. Coleman is predominately a geochemist/isotopist with microbiology interests. Educated in the UK (BSc geology and chemistry double honors, University of London; MSc geochemistry and PhD isotope geochemistry, University of Leeds) he has worked in government science (British Geological Survey), industry (British Petroleum exploration) and academia (Professor of Sedimentology at the University of Reading, UK). He applies multidisciplinary, fundamental research to elicit solutions to practical problems in petroleum exploration and production, environmental pollution, radioactive waste storage, forensic science, and carbon capture and storage (cosmic ray muon imaging of subsurface supercritical CO_2). He also searches for life on other planets, working with NASA's Jet Propulsion Laboratory, California Institute of Technology (USA).

James R. Ehleringer is Distinguished Professor of Biology and director of the Stable Isotope Ratio Facility for Environmental Research at the University of Utah (USA). He recently stepped down as the founding director of the Utah's Global Change and Sustainability Center whose interdisciplinary focus was, and is, on the environment and sustainability. James developes multidisciplinary research projects that range from the impact of global change on natural and urban ecosystems through to forensic science.

Dee Flight is the British Geological Survey (BGS) Skills Leader for Geochemistry and Mineralogy and is the BGS Head of Science Training. Prior to this, she was the project leader for the BGS's Geochemical Baseline Survey of the Environment (G-BASE) and initiated the geochemical mapping of London's soils (the London Earth project). She has extensive experience in applying geochemistry to regional survey and environmental problems. She has worked with BGS since 1989, having received a BSc from the University of Aston (UK) and an MSc from Imperial College London (UK).

Christian Ihlenfeld is Principal Geochemist with Anglo American plc, one of the world's major diversified mining companies. He holds an MSc in geology and geochemistry from Ludwig-Maximilians-Universität (München, Germany) and a PhD in geochemistry from La Trobe University (Melbourne, Australia). Prior to joining Anglo American in early 2007, he was a post-doctoral research fellow at Monash University (Melbourne), working on an Anglo American–funded research project on lithogeochemical fertility indicators for magmatic Ni–Cu–Platinum group element (PGE) sulphide exploration. In his current role, he provides technical guidance and specialist support to ensure the optimal application of exploration geochemical techniques in Anglo American's global exploration programs.

Kurt Kyser received his BS in chemistry from University of California-San Diego (USA) and his MA and PhD from University of California-Berkeley (USA). He is currently the director of the Queen's Facility for Isotope Research (QFIR) at Queen's University (Canada). The interests of his research group include applied isotope geochemistry, fluid–rock interactions, and environmental and exploration geochemistry, with emphasis on both pure and applied science The current focus of his research is on developing new technologies to help formulate effective exploration for ore deposits, understand how elements migrate in the near-surface environment, and developing management strategies for natural resources.

John Ludden is an executive director at the British Geological Survey since 2006. Prior to this he was Director of the Earth Sciences Division at the French National Centre for Scientific Research (CNRS). He worked as a professor and research scientist at the University of Montreal (Canada), at the Lamont-Doherty Earth Observatory, Earth Institute of Columbia University (USA) and at the Woods Hole Oceanographic Institution (USA). John holds a doctorate from the University of Manchester (UK) and currently has visiting and honorary professor status at several universities. He is also a Foreign Member of the Russian Academy of Sciences and past president of the European Geosciences Union and EuroGeoSurveys.

Luiz A. Martinelli is an associate professor at the University of São Paulo (Brazil). His research into the ecology and geochemistry of the Amazon Basin has earned him recognition as one of Brazil's leading scientists in his field. In addition to publishing numerous papers in scientific journals, he has worked with both the International Geosphere-Biosphere Program and the Scientific Committee on Problems of the Environment (SCOPE).

Paul F. McMillan is Sir William Ramsay Professor in the chemistry department at University College London (UK). He completed a PhD degree at Arizona State University (USA) in 1981 and remained there until 2000 as professor and director of the center for solid-state science. His wide research interests include solid-state chemistry, synthesizing new materials, high-pressure–high-temperature science and investigating layered carbon nitrides for energy applications. Recently, he began studying high-pressure biology and biophysics, including the survival and adaptation mechanisms of organisms such as Shewanella oneidensis when exposed to extreme environmental conditions.

Denis Peach is a chief scientist at the British Geological Survey (BGS) and was the manager of the BGS Groundwater Programme (Wallingford, UK). He is a hydrogeologist with broad interests in environmental geosciences, including shallow geophysics, hydrogeochemistry, engineering geology, and numerical modelling. He has 35 years' experience, which includes work for a UK water authority, overseas work in tropical hydrogeological environments, and work for international consultants in arid-zone hydrogeology. His scientific interests include the development of groundwater modelling in BGS. Denis collaborates with several universities and the Centre for Ecology and Hydrology (part of the UK's Natural Environment Research Council) for an interdisciplinary approach to understanding catchment areas. He is an honorary professor at the University of Birmingham (UK) and former vice president of the Geological Society of London.

Brett J. Tipple is a research assistant professor at the University of Utah (USA) and a research scientist at IsoForensics Inc. His research interests include the fields of isotope forensics, isotope geochemistry, paleoclimatology, and modern and ancient plant ecology. Some of his current areas of research are modern plant ecophysiology and applications of heavy isotopes from human tissues for provenancing. Brett obtained his PhD from Yale University (USA) in 2009.

Luciano O. Valenzuela is an assistant researcher at the Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET: the National Scientific and Research Council) in Argentina, and a research assistant professor at the University of Utah (USA). His research projects focus on the use of stable isotopes to study animal migration and human movement across landscapes, as well as the effects of dietary transitions on modern human health. He is also interested in applying stable isotopes to forensic investigations and food traceability.

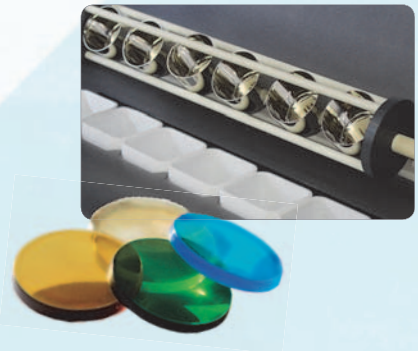
Katanax®

X-600 X-FLUXER®

STRONGER. FASTER. BETTER

SAMPLE PREPARATION FOR XRF AND ICP ANALYSIS

The Katanax X-600 fusion fluxer is the next generation in electric fusion offering new enhanced features for unparalleled results. This six-position heavy-duty, fully automated, electric fusion machine has a throughput of up to 30 samples per hour. It is used to prepare glass disks (beads) for XRF analysis and solutions for ICP/AA analysis including peroxide and pyrosulfate fusions.



- Heating is achieved through patent-pending, robust sealed elements that require no conditioning and are impervious to flux. This makes the X-600 the ideal electric fluxer for the experienced or novice user.
- Intuitive, LCD touch-screen interface with icons and menus for easy automated operation. Pre-loaded with various fusion programs that can be customized for your particular protocol.
- Non-contaminating, easy to clean, ceramic crucible and mold holders are inert to flux. The mold holder system is user-configurable to 30, 32, 35 or 40mm molds in minutes
- Optional solutions stirrer with variable speed to produce solutions for ICP/AA analysis in up to 6 beakers simultaneously.

WATCH THE VIDEO
Scan for the QR code for more information or visit www.youtube.com/sampleprep

SPEX® SamplePrep®

WWW.SPEXSAMPLEPREP.COM/KATANAX
SAMPLEPREP@SPEX.COM • 1-855-GET-SPEX