Catherine Annen is a computational Earth scientist and is currently a senior research fellow at the University of Bristol (UK). Her expertise is in modeling magmatic processes. She studied Earth sciences at the University of Geneva (Switzerland) and holds a PhD in volcanology jointly awarded by Blaise Pascal University in Clermont-Ferrand (France) and the University of Geneva. Her research interests include how silicic melts are generated, how magma chambers are formed, the relationship between plutonism and volcanism, the speed at which magmas move, and the formation of thermal aureoles.

Jon Blundy is professor of petrology in the School of Earth Sciences at the University of Bristol (UK). Jon obtained his BA in geology from the University of Oxford (UK) in 1985 and his PhD from the University of Cambridge (UK) in 1989. Jon is a petrologist interested in all things magmatic, from trace element partitioning between minerals and melts, to the generation and ascent of magmas in the crust and the underground working of active volcanoes. He interrogates igneous rocks through a combination of microbeam analysis, high pressure and temperature experiments, thermodynamic modelling and fieldwork.

Bruce L. A. Charlier is Geochemistry Laboratory Manager at Victoria University of Wellington (New Zealand). He obtained a BSc from Brunel University (UK), a PhD from the Open University (OU) (UK), and held postdoctoral positions at Durham (UK) and the OU. His main research interests center on the quantification of rates and timescales of magmatic processes, specializing in U-series disequilibrium in zircon from young magmatic systems. His research also focuses on crystal-specific isotopic work and heavy stable isotope fractionation in order to constrain magmatic pathways by using novel sampling, low blank separation and mass spectrometric methodologies.

Drew Coleman is professor of geological sciences at the University of North Carolina at Chapel Hill (USA). He earned his PhD from the University of Kansas (USA). Work in Coleman’s lab focuses on using isotope geochronology and geochemistry to understand the rates of magma accumulation and the origins of magma itself. His group is striving to understand the links between plutonic and volcanic rocks, and the temporal links between supereruptions and economic Mo, Au and Ag mineralization.

Allen F. Glazner is the Kenan Distinguished Professor of geological sciences at the University of North Carolina at Chapel Hill (USA). Allen obtained his BA at Pomona College (USA) and his PhD at the University of California, Los Angeles (USA). His expertise is in igneous petrology, high-temperature geochemistry, geoinformatics, and tectonics, with a special emphasis on western North America. For the last 10 years he has focused on granites, particularly the timescales of granite formation and petrologic processes, and he was part of an effort to map the 1 km cliff of El Capitan in Yosemite Valley (California, USA) in unprecedented detail. He has written three Geology Underfoot books for the lay person on the geology of California.

Patricia M. Gregg is an assistant professor of geophysics at the University of Illinois at Urbana-Champaign (USA). She received a BS from Missouri University of Science and Technology and a PhD in the Massachusetts Institute of Technology/Woods Hole Oceanographic Institution Joint Program (USA) and was awarded a National Science Foundation Postdoctoral Fellowship at the Lamont-Doherty Earth Observatory in New York (USA) and at Oregon State University (USA). Her research program in geodynamics focuses on linking together observations from a variety of disciplines (geochemistry, geophysics, and structural geology) to better understand the evolution of volcanic systems and, in particular, what triggers their eruption.

The 2nd European Mineralogical Conference will be held at the Palacongressi of Rimini, Italy, 11-15 September 2016.

Main themes will be: Mantle petrology and geochemistry • Magmatism and volcanology • Metamorphism • Applied mineralogy • Mineral physics • Mineralogical crystallography • Mineral diversity and evolution • Planetary materials and processes • Mineral deposits and raw materials • Low-T geochemistry • Geochronology • Geomicrobiology and biomineralogy • Mineralogical sciences for climate change • Environmental and medical mineralogy • Advanced analytical techniques • Archaeometry, care and preservation

There will be a series of invited plenary lectures, including the acceptance speech of the recipient of the IMA medal award. Chairmen: Giuseppe Cruciani and Bernardo Cesare on behalf of SIMP. Email: info@emc2016.socminpet.it
Francois Holtz is professor for petrology at the Leibniz University of Hannover (Germany). His research focuses on the chemical properties of high-temperature systems. He is in charge of a high-pressure laboratory and has contributed to several studies on the experimental determination of phase relationships in magmatic systems to constrain the formation and differentiation of continental and oceanic crust. He has participated in several projects aimed at characterizing magma plumbing systems and volcanic processes, with particular attention to the incorporation mechanisms of volatiles in silicate melts. Recent work includes investigating evolved flux-rich systems and how platinum group elements, Au, Sn, and Mo are distributed between minerals, melts and fluids.

Craig Lundstrom is a professor of petrology and geochemistry at the University of Illinois at Urbana-Champaign (USA). He received a BA from the Colorado College (USA), followed by a PhD at the University of California, Santa Cruz (USA) and a postdoc at Brown University (Rhode Island, USA). His research focuses on understanding magma formation and differentiation by combining experimental petrology with trace element and isotopic characterization of natural samples.

Ryan D. Mills is a research scientist at the University of North Carolina, Chapel Hill (USA), where he manages the thermal ionization mass spectrometry laboratories. He uses isotope geochemistry to investigate processes surrounding the generation and differentiation of silicic magmas on the Earth and the Moon. Mills earned his MS and PhD from the University of North Carolina (USA) and then spent 2 years as a NASA postdoctoral fellow at the Johnson Space Center in Houston (Texas, USA).

Michel Pichavant is a senior researcher at the Institut des Sciences de la Terre d’Orléans, in Orléans (France). Using (mainly) high-temperature–high-pressure experimental approaches, he is developing methods and models to simulate magmatic processes. His early career centered on investigating highly evolved granitic and rhyolitic systems. Later, his interest turned to active andesitic volcanoes in the Antilles and basaltic systems from southern Italy and the island of La Réunion. Apart from igneous systems, he has also made contributions to hydrothermal processes, metallogeny and material science.

Matt Pritchard is a geophysicist who measures changes in the shape of the Earth and develops models of the myriad processes that cause these changes, namely, earthquakes, volcanoes, ground-water, landslides, and glaciers. He makes field observations using radar and optical satellites, and he is currently a member of the Science Definition Team for the NASA/Indian Space Research Organization’s NASA–ISRO synthetic aperture radar (NiSAR) mission to be launched in 2020. He was educated at the University of Chicago (BA) and the California Institute of Technology (MS and PhD) and was a Harry Hess Postdoctoral Scholar at Princeton University (USA).

Bruno Scaillet is a senior researcher at the French Centre National de la Recherche Scientifique (CNRS), trained first in field and structural geology on Himalayan leucogranites during his PhD at Le Centre de Recherches Pétrographiques et Géochimiques in Nancy (France). He then embarked on a postdoc at the Institut des Sciences de la Terre d’Orléans (France) to carry out phase equilibria on granites. He obtained a permanent position at CNRS in Orléans in 1993 and has since devoted his research activities to experimental approaches aimed at constraining the physico-chemical processes ruling magma production, storage and eruption, with a special attention to the role of volatiles and redox conditions. He has been director of the Institut des Sciences de la Terre d’Orléans since 2010.

Colin J.N. Wilson is a professor of volcanology at Victoria University in Wellington (New Zealand). He studied at Imperial College, London (UK) with George Walker and has worked extensively in New Zealand, as well as in the western United States and Alaska. He studies large explosive eruptions, particularly those that generate ignimbrites, in order to understand eruption processes on various scales. He also does research on the dynamics of magmatic systems at large silicic caldera volcanoes (Taupo Volcanic Zone [New Zealand], and Long Valley and Yellowstone [both USA]), integrating laboratory and analytical information with detailed field studies.

Matthew J. Zimmerer is a field geologist at the New Mexico Bureau of Geology and Mineral Resources (USA). He received his BS from the University of Kentucky (USA) and his MS and PhD from the New Mexico Institute of Mining and Technology (USA). He uses a variety of dating methods to understand the timescales and processes of large-scale volcanic eruptions. His also researches volcanic hazard assessment for the southwestern US. In addition to research, his interests include using unmanned aerial vehicles (UAVs) to capture aerial videos and photographs for geoscience education.
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For MiniFlex300/600 systems using a scintillation counter, it is possible to install a graphite monochromator of the type used in high-grade, standalone, general-purpose equipment. By using a monochromator, it is possible to obtain an X-ray diffraction pattern with high peak-to-background (P/B) ratios because the monochromator can remove interfering components such as continuous X-rays produced by the X-ray tube, Kβ-rays, and fluorescent X-rays from the sample.

Fig. 1 shows the X-ray diffraction pattern for hematite, measured using the Kβ filter method and the graphite monochromator method. The large reduction in background makes it possible to observe very weak peaks as illustrated by the inset box between 38 and 40°. This makes identification of trace phases much easier.

Fig. 2 shows the X-ray diffraction pattern and qualitative analysis results for Fe oxide, measured using a graphite monochromator. By using a graphite monochromator, it is possible to obtain an X-ray diffraction pattern with an extremely low background, and thereby detect trace components.

Apparatus conditions: MiniFlex600 (fine focus tube 40 kV 15 mA), Detector: Scintillation counter (monochromator), Slit conditions: DS / SS = 1.25°, RS = 0.3 mm, Incident side and receiving side Soller slit: 5°, Incident height limiting slit = 10 mm

Measurement condition: Scan range: 2θ = 10 ~ 70°, Step width: 0.02°, Scan speed: 4° / min. (about 15 min.)
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Left: (a, b) Spot analyses on unpolished zircon crystal g15 from the Terre Blanche Dome (SVC, Saint Lucia) followed by (c, d) sectioning and interior analysis.

Right: 238U - 230Th zircon depth profiling at μm scale spatial resolution indicates crystallization over ~200 ka.


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