

Preface: EMPG XIV

The Fourteenth International Symposium on Experimental Mineralogy, Petrology and Geochemistry was held in Kiel, Germany, 4–7 March 2012, and was organized by Philip Kegler from the Institute of Geosciences, Department of Mineralogy. More than 260 scientists from 30 countries attended the meeting. Altogether, 230 abstracts were submitted and presented over three full days of two parallel oral sessions and one dedicated poster session. The posters were displayed over the entire time of the conference. Almost 40% of the contributions were presented by graduate students. Plenary lectures were given by Michael Walter, University of Bristol, Bristol, UK, on the subject of ‘Modelling core formation in Earth: regression – useful analytical tool or Freudian nightmare?’, by Stephen Parman, Brown University, Providence, USA, on ‘Recycling of noble gases: Experimental measurements of Helium solubility in amphibole and other ring-bearing minerals’, and by Detlef Köpsel, Schott AG, Corporate Research and Technology Development, Mainz, Germany, on ‘Gases and bubbles in technical glasses’. The subjects of the plenary lectures mirrored the wide range of the attendees’ contributions with topics of the evolution of terrestrial planets and the early Earth, subduction-zone processes, and the deep Earth. Another theme concentrated on new frontiers and developments in experimental applications and applied geosciences, such as exploration or disposal of energy-related and hazardous materials. During the EMPG XIII in Toulouse 2010, an effort was made to encourage closer links between experimental approaches and theoretical simulations. During EMPG XIV in Kiel, researchers with numerical backgrounds presented their research in at least two sessions. Hopefully, this effort will be continued in future EMPG symposia.

The organization of the meeting was supported by financial contributions from the European Mineralogical Union, the German Mineralogical Society, and the commercial exhibitors Cameca, Hawedia, Jeol GmbH, Lampert Werktechnik GmbH, Max Voggenreiter GmbH, PANalytical GmbH, Parr Instrument, Schweizerbart Borntraeger Science Publishers, Springer Spektrum Verlag GmbH, and Swagelok Best Fluidsysteme GmbH.

We solicited submissions for a special issue of European Journal of Mineralogy, and the papers included here represent a cross section of the work presented at the meeting. Zhang reviews recent advances in the kinetics and dynamics of mineral and bubble dissolution or growth controlled by mass transfer, focusing on quantitative prediction models. Holzheid presents experimental evidence that efficient core formation by a percolation mechanism is only feasible when conditions are very oxidizing or a large fraction of silicate partial melt or a completely molten silicate exists. Wolff et al. investigated reaction mechanisms of hydrous partial melting of gabbro in the deep oceanic crust and discuss implications for the formation of SiO₂-rich melts in the oceanic crust. Karimova & Stalder studied the incorporation mechanisms of OH in pyroxenes and suggest that the water content in pyroxenes correlates with silica activity during crystallization. Marxer & Nowak detected concentration gradients of volatiles, such as, H₂O and CO₂, in silicate glasses by micro-FTIR microscopy, and confirm that FTIR imaging is a convenient tool to investigate the spatial distribution of these volatiles in silicate glasses, especially in terms of diffusion-related studies. Finally, Nover et al. report experimentally determined changes of petrophysical, petrological, mineralogical, mechanical, and chemical parameters of sandstones as a result of exposure to supercritical CO₂.

We are grateful to all the participants at the meeting and all contributors to this special issue. We look forward to the next EMPG meeting in Amsterdam, The Netherlands, during 2014.

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