EUROPEAN MINERALOGICAL UNION

Society News

EUROPEAN MINERALOGICAL UNION

EMU NOTES IN MINERALOGY, VOLUME 7

Mineral Behaviour at Extreme Conditions
Edited by Ronald Miletich

Amongst its various activities, the
European Mineralogical Union organizes short courses (‘Schools’) in front-rank fields of the mineralogical sciences. Each of these schools is accompanied by the publication of a review volume in the series EMU Notes in Mineralogy. We reported on the first six volumes in the series in the last issue of Elements. In 2005, EMU held a school entitled Mineral Behaviour at Extreme Conditions. The school was organized by Ronald Miletich and held in Heidelberg (Germany) from June 19 to 25, 2005. Recently, the seventh volume of the EMU Notes in Mineralogy was published; it contains the contributions presented during this school.

This most recent volume of the EMU Notes in Mineralogy provides up-to-date reviews of our understanding of the behaviour of minerals and geomataters under external conditions that are sufficiently extreme to induce significant changes. The volume’s eighteen chapters reflect the diversity of this theme. They also demonstrate how highly interdisciplinary this domain of modern mineralogy has become, bringing together physicists, chemists and geologists, experimentalists and computer scientists. The chapters are well balanced with respect to providing basic introductory material, information on the experimental facilities to be found in modern laboratories, and the evaluation and interpretation of experimental data at the limits of conditions achievable in modern laboratories. In addition, discussions of theoretical approaches help the reader to understand experimental results and to gain insights where the necessary experimental conditions are still far from feasible.

All authors are internationally known specialists, each focusing on theoretical, practical or experimental aspects. The EMU Notes series was introduced to provide university teachers with up-to-date reviews in important, rapidly evolving areas of mineralogical science and to introduce both senior scientists and students to new topics.

The volume consists of the following chapters:

- Introduction to minerals under extreme conditions
  (H. Keppler, Bayreuth, Germany and D.J. Forst, Bayreuth, Germany)
- Mineral structures, defects and their evolution with pressure
  and temperature (R. Miletich, Heidelberg, Germany and T. Malcherek, Hamburg, Germany)
- Silicate melts at extreme conditions
  (S.L. Webb, Göttingen, Germany)
- Elastic and piezoelectric properties of minerals I. Principles
  and experimental approaches (J. Schreuer, Frankfurt, Germany
  and S. Haussühl, Cologne, Germany)
- Basics of first-principles simulation of matter under extreme
  conditions (D.Y. Jung, Zurich, Switzerland and A.R. Oganov,
  Zurich, Switzerland)
- Displacive phase transitions (T. Malcherek, Hamburg, Germany)
- Elastic and piezoelectric properties of minerals II.
  Structure–property relationships (J. Schreuer, Frankfurt,
  Germany and S. Haussühl, Cologne, Germany)
- Mineral surfaces – part I: Surface-sensitive techniques
  (S.L.S. Stipp, Copenhagen, Denmark)
- Diamonds as optical windows to extreme conditions
  (R. Boehler, Mainz, Germany)
- Fluid–mineral interaction at high pressure (H. Keppler,
  Bayreuth, Germany and A. Audétat, Bayreuth, Germany)
- Mineral surfaces – part II: Structure and reactivity
  (S.L.S. Stipp, Copenhagen, Denmark)
- Laser heating at megabar pressures: Melting temperatures
  of iron and other transition metals (R. Boehler, Mainz, Germany)
- Diffraction techniques: Shedding light on structural changes
  at extreme conditions (R. Miletich, Heidelberg, Germany,
  C. Hejny, Heidelberg, Germany, G. Kraus, Zurich, Switzerland
  and A. Ullrich, Heidelberg, Germany)
- Plastic deformation of minerals at high pressure: Experimental
  techniques (P. Cordier, Lille, France, H. Covuy, Lille, France,
  S. Merkel, Berkeley, USA and D. Weidner, Stony Brook, USA)
- Shock experiments on minerals: Basic physics and techniques
  (F. Langenhorst, Jena, Germany and U. Hornemann, Efringen-
  Kirchen, Germany)
- Plastic deformation of minerals at high pressure: Multiscale
  numerical modelling (P. Cordier, Lille, France, F. Barbe, Rouen,
  France, J. Durinck, Lille, France, A. Tommasi, Montpellier, France,
  and A.M. Walker, Canberra, Australia)
- Viscoelasticity of the Earth’s mantle (S.L. Webb, Göttingen,
  Germany)
- Theory of minerals at extreme conditions: Predictability of
  structures and properties (D.J. Adams, Zurich, Switzerland
  and A.R. Oganov, Zurich, Switzerland)

All chapters include an extended list of references. Some figures are in colour. At the end of the book there are author and subject indexes.

How to place an order
Please send an e-mail to: herta.silvia.effenberger@univie.ac.at
asking for:

Vol. 7 (2005): “Mineral Behaviour at Extreme Conditions”
Price: 24 € (excl. postage)

Order forms are available from EMU’s home page
http://www.univie.ac.at/Mineralogie/EMU/school.htm#Notes.

The eighth EMU School was held in Budapest, Hungary, from August 28 to September 1, 2006. The topic was Technical Mineralogy: Silicate-Based Materials. The accompanying volume is expected to be published by the end of the year. The editor is Bernard Grobéty, University of Fribourg, Switzerland.

Peter Ulmer, President
David Vaughan, Past President
Herta Effenberger, Secretary