

PH  
P 59/2m

# Physics and Chemistry of Minerals

NO SUBMISSION FEE  
FOR FULL COLOR ILLUSTRATIONS!



## Editors

### C.A. McCammon

Bayerisches Geoinstitut  
Universität Bayreuth  
95440 Bayreuth, Germany  
e-mail: catherine.mccammon@uni-bayreuth.de

### T. Tsuchiya

Geodynamics Research Center  
Ehime University  
2-5 Bunkyo-cho  
Matsuyama 790-8577, Japan  
e-mail: takut@sci.ehime-u.ac.jp

### M. Rieder

Mimoňská 14 / 638  
190 00 Praha 9 - Prosek  
Czech Republic  
e-mail: Milan\_Rieder@JHU.edu

### A. Kavner

Department of Earth and Space Sciences  
University of California, Los Angeles  
595 Charles Young Drive East, Box 951567  
Los Angeles, CA 90095-1567  
e-mail: akavner@ucla.edu

## Founding Editors

S.S. Hafner, C.T. Prewitt and A.S. Marfunin

## Physics and Chemistry of Minerals Volume 40 · Number 2 · February 2013

### ORIGINAL PAPERS

#### Improved zircon fission-track annealing model based on reevaluation of annealing data

S. Guedes · P.A.F.P. Moreira · R. Devanathan · W.J. Weber · J.C. Hadler 93

#### Iron partitioning in pyrolitic lower mantle

R. Sinmyo · K. Hirose 107

#### Combination of multi-scale and multi-edge X-ray spectroscopy for investigating the products obtained from the interaction between kaolinite and metallic iron in anoxic conditions at 90 °C

C. Rivard · E. Montargès-Pelletier · D. Vantelon · M. Pelletier · C. Karunakaran · L.J. Michot · F. Villieras · N. Michau 115

#### Phase transitions and proton ordering in hemimorphite: new insights from single-crystal EPR experiments and DFT calculations

M. Mao · Z. Li · Y. Pan 133

#### On the crystal structure and compressional behavior of talc: a mineral of interest in petrology and material science

G.D. Gatta · M. Merlini · G. Valdrè · H.-P. Liermann · G. Nénert · A. Rothkirch · V. Kahlenberg · A. Pavese 145

#### Elasticity of calcite: thermal evolution

C.-C. Lin 157

#### Heat capacity and entropy of low structural state plagioclases

A. Benisek · E. Dachs · M.A. Carpenter 167

#### Polymorphism of $As_4S_3$ (tris-( $\mu_2$ -sulfido)-tetra-arsenic): accurate structure refinement on natural $\alpha$ - and $\beta$ -dimorphites and inferred room temperature thermodynamic properties

A. Gavezzotti · F. Demartin · C. Castellano · I. Camprostrini 175

#### New type of possible high-pressure polymorphism in NiAs minerals in planetary cores

P. Dera · J. Nisar · R. Ahuja · S. Tkachev · V.B. Prakapenka 183

Further articles can be found at [www.springerlink.com](http://www.springerlink.com)

Indexed in Science Citation Index, Science Citation Index Expanded (SciSearch), SCOPUS, Astrophysics Data System (ADS), Chemical Abstracts Service (CAS), Google Scholar, EBSCO, Academic OneFile, ChemWeb, Current Abstracts, Current Contents/Physical, Chemical and Earth Sciences, EI-Compendex, Gale, Geobase, GeoRef, INIS Atomindex, International Bibliography of Book Reviews (IBR), International Bibliography of Periodical Literature (IBZ), Journal Citation Reports/Science Edition, Materials Science Citation Index, OCLC, SCImago, Summon by Serial Solutions, VINITI - Russian Academy of Science

Instructions for authors for *Phys Chem Minerals* are available at [www.springer.com/269](http://www.springer.com/269)