Mineralogy and Petrology (2005) 85: 1–2
DOI 10.1007/s00710-005-0113-5

Mineralogy and Petrology

Preface – Special Issue: Mineral Spectroscopy

E. Libowitzky and **A. Beran**

Institut für Mineralogie und Kristallographie, Universität Wien – Geozentrum, Austria

This special volume of "*Mineralogy and Petrology*" deals with the application of various spectroscopic techniques in mineralogy and related disciplines. In addition to classical mineralogy and crystallography the seven papers presented in this volume also cover novel areas such as environmental sciences and nanosciences, as well as gemmology and astro-mineralogy. The investigated objects are silicates, oxides, oxihydroxides and, in one case, even a sulfide. The applied techniques include electron paramagnetic resonance and magnetic measurements, optical absorption and luminescence spectroscopy, X-ray absorption spectroscopy, Mössbauer spectroscopy, and infrared absorption and emission spectroscopy. The contributions are essentially based on talks and posters presented at the 5th European Conference on Mineralogy and Spectroscopy (ECMS 2004) which was held from September 4 to 8, 2004 in Vienna, Austria.

In general, interest in and application of spectroscopic methods in the Earth sciences has increased during recent years. In contrast to diffraction techniques which are based upon the strict periodicity and long range order of the crystalline state and thus deliver bulk information of the whole sample, spectroscopic methods can also be applied to poorly crystallised matter, nanomaterials, metamict samples, melts and glasses. Moreover, the obtained information is site specific (in many cases also element sensitive) and thus a local probe even for defects, trace constituents etc. on the short range scale. The development of spectroscopic micro-methods now allowing investigation of small sample volumes and the emerging use of computer simulation to enhance interpretation and quantification of spectroscopic results have further promoted the use of spectroscopic methods in mineralogy.

We wish to thank the deceased Editor of "*Mineralogy and Petrology*" E. F. Stumpfl for his invitation to compile this special volume and the present Editor J. G. Raith for his general support. We acknowledge the efforts of all contributing authors who submitted interesting manuscripts covering such a variety of topics and methods. Finally, we appreciate the critical and constructive comments

of numerous reviewers who helped to further improve the quality of the papers of this volume.

Authors' address: *E. Libowitzky* and *A. Beran*, Institut für Mineralogie und Kristallographie, Universität Wien – Geozentrum, Althanstrasse 14, 1090 Wien, Austria, e-mail: eugen.libowitzky@univie.ac.at; anton.beran@univie.ac.at