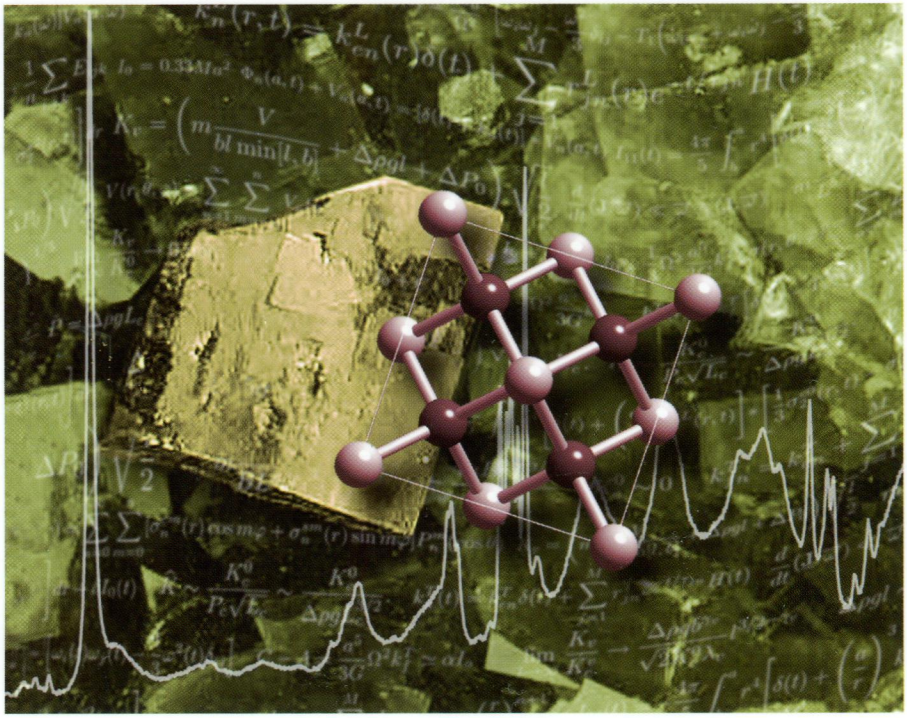
REVIEWS in
MINERALOGY &
GEOCHEMISTRY
Volume 78

SPECTROSCOPIC METHODS

in Mineralogy and Materials Sciences

EDITORS: Grant S. Henderson,
Daniel R. Neuville, Robert T. Downs



MINERALOGICAL SOCIETY OF AMERICA
GEOCHEMICAL SOCIETY
Series Editor: Jodi J. Rosso

2014 *ISSN 1529-6466*

Spectroscopic Methods in Mineralogy and Materials Sciences

78 *Reviews in Mineralogy and Geochemistry* **78**

TABLE OF CONTENTS

4 Probing of Pressure-Induced Bonding Transitions in Crystalline and Amorphous Earth Materials: Insights from X-ray Raman Scattering at High Pressure

Sung Keun Lee, Peter J. Eng, Ho-kwang Mao

5 Luminescence Spectroscopy

Glenn A. Waychunas

6 Analytical Transmission Electron Microscopy

Rik Brydson, Andy Brown, Liane G. Benning, Ken Livi

7 High Resolution Core- and Valence-Level XPS Studies of the Properties (Structural, Chemical and Bonding) of Silicate Minerals and Glasses

H.W. Nesbitt, G.M. Bancroft

8 Analysis of Mineral Surfaces by Atomic Force Microscopy

Jacques Jupille

9 Optical Spectroscopy

George R. Rossman

10 Spectroscopy from Space

Roger N. Clark, Gregg A Swayze, Robert Carlson, Will Grundy, Keith Noll

11 SR-FTIR Microscopy and FTIR Imaging in the Earth Sciences

Giancarlo Della Ventura, Augusto Marcelli, Fabio Bellatreccia

12 Carryover of Sampling Errors and Other Problems in Far-Infrared to Far-Ultraviolet Spectra to Associated Applications

Anne M. Hofmeister

13 Advances in Raman Spectroscopy Applied to Earth and Material Sciences

Daniel R. Neuville, Dominique de Ligny, Grant S. Henderson

15 NMR Spectroscopy of Inorganic Earth Materials

Jonathan F. Stebbins, Xianyu Xue

16 Electron Paramagnetic Resonance Spectroscopy: Basic Principles, Experimental Techniques and Applications to Earth and Planetary Sciences

Yuanming Pan, Mark J. Nilges

17 Theoretical Approaches to Structure and Spectroscopy of Earth Materials

Sandro Jahn, Piotr M. Kowalski

18 High-pressure Apparatus Integrated with Synchrotron Radiation

Guoyin Shen, Yanbin Wang

19 *In situ* High-Temperature Experiments

Daniel R. Neuville, Louis Hennet, Pierre Florian, Dominique de Ligny