
Table of Contents

Title Page	i
Copyright	ii
Editorial	iii
Acknowledgments	vi
About the Editors	vii
Note to the Reader	viii
Introduction <i>Wayne K. Camp, Elizabeth Diaz and Barry Wawak</i>	ix
Chapter 1. An Introduction to SEM Operational Principles and Geologic Applications for Shale Hydrocarbon Reservoirs <i>Jason Huang, Timothy Cavanaugh and Boaz Nur</i>	1
Chapter 2. Integrated Preparation and Imaging Techniques for the Microstructural and Geochemical Characterization of Shale by Scanning Electron Microscopy <i>Natasha Erdman and Nicholas Drenzek</i>	7
Chapter 3. Enhancing SEM Grayscale Images through Pseudocolor Conversion: Examples from Eagle Ford, Haynesville, and Marcellus Shales <i>Wayne K. Camp and Barry Wawak</i>	15
Chapter 4. Multiscale Imaging of Shale Samples in the Scanning Electron Microscope <i>Herman Lemmens and Denise Richards</i>	27
Chapter 5. Microfabrics Related to Porosity Development, Sedimentary and Diagenetic Processes, and Composition of Unconventional Resource Shale Reservoirs as Determined by Conventional Scanning Electron Microscopy <i>Roger M. Slatt and Neal R. O'Brien</i>	37
Chapter 6. SEM Characterization of Shale Gas Reservoirs Using Combined Secondary and Backscatter Electron Methods: An Example from the Haynesville Shale, Texas and Louisiana <i>David R. Spain and Ryan McLin</i>	45
Chapter 7. FIB-SEM and TEM Investigations of an Organic-rich Shale Maturation Series from the Lower Toarcian Posidonia Shale, Germany: Nanoscale Pore System and Fluid-rock Interactions <i>Sylvain Bernard, Leon Brown, Richard Wirth, Anja Schreiber, Hans-Martin Schulz, Brian Horsfield, Andrew C. Aplin, and Eliza J. Mathia</i>	53

Chapter 8.	67
Pore Size Distribution and Morphology in the Horn River Shale, Middle and Upper Devonian, Northeastern British Columbia, Canada	
<i>Tian Dong and Nicholas B. Harris</i>	
Chapter 9.	81
Porosity Characterization of Various Organic-rich Shales from the Western Canadian Sedimentary Basin, Alberta and British Columbia, Canada	
<i>Raphael A. J. Wüst, Brent R. Nassichuk, and R. Marc Bustin</i>	
Chapter 10.	101
Petrographic Characterization of the Eagle Ford Shale, South Texas: Mineralogy, Common Constituents, and Distribution of Nanometer-scale Pore Types	
<i>Debra S. Jennings and Jonathan Antia</i>	
Chapter 11.	115
Applications of SEM Imaging to Reservoir Characterization in the Eagle Ford Shale, South Texas, U.S.A.	
<i>Brian Driskill, Joel Walls, Juliana DeVito, and Steven W. Sinclair</i>	
Chapter 12.	137
Comparison of Porosity Distribution within Selected North American Shale Units by SEM Examination of Argon-ion-milled Samples	
<i>James M. Rine, Erin Smart, William Dorsey, Kultaransingh Hooghan, and Michael Dixon</i>	
Chapter 13.	153
SEM Observations on Ion-milled Samples of Devonian Black Shales from Indiana and New York: The Petrographic Context of Multiple Pore Types	
<i>Juergen Schieber</i>	
Glossary.	173
Image Catalog.	177

CD-ROM MATERIAL

Appendix A

Petrographic Analysis

Appendix B

Petrographic Descriptions and Thin Section Photomicrographs

Appendix C

Pseudocolor Catalog Images

Appendix D

Three-dimensional SEM Imaging and Digital Rock Physics