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Titolo	Greenhouse Gases and Clay Minerals : Enlightening Down-to-Earth Road Map to Basic Science of Clay-Greenhouse Gas Interfaces / / edited by Vyacheslav Romanov
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Descrizione fisica	1 online resource (XV, 187 p. 66 illus., 53 illus. in color.)
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Disciplina	574.526404
Soggetti	Renewable energy resources Air - Pollution Geotechnical engineering Climatic changes Renewable and Green Energy Atmospheric Protection/Air Quality Control/Air Pollution Geotechnical Engineering & Applied Earth Sciences Climate Change/Climate Change Impacts
Lingua di pubblicazione	Inglese
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Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Background -- Greenhouse Gases And Climate Change -- Carbon Management: Geomaterials And Geological Formations -- Clay Mineralogy -- Advanced Experimental Techniques In Geochemistry -- Experimental Studies: Molecular Interactions At Clay Interfaces -- Experimental Studies: Clay Swelling -- Classical MD Simulations Of Clay Systems -- Quantum Chemistry Of Clay Interlayer.
Sommario/riassunto	This book is a systematic compilation of the most recent body of knowledge in the rapidly developing research area of greenhouse gas interaction with clay systems. Unexpected results of the most recent studies – such as unusually high sorption capacity and sorption hysteresis of swelling clays –stimulated theoretical activity in this fascinating field. Classical molecular dynamics (MD) explains swelling caused by intercalation of water molecules and to a certain degree of

CO2 molecules in clay interlayer. However, unusual frequency shifts in the transient infrared fingerprints of the intercalated molecules and the following accelerated carbonation can be tackled only via quantum mechanical modeling. This book provides a streamlined (from simple to complex) guide to the most advanced research efforts in this field.