

This book is an amazing *tour de force*. A comprehensive and detailed treatise on rocks and their physical properties, it will convince the reader that rocks are incredibly complex natural systems and that a huge variety of rock physics models and approaches are required for solving many fundamental and applied geosciences questions.

Professor Yves Bernabé, *Massachusetts Institute of Technology / University of Bristol Department of Earth, Atmospheric and Planetary Sciences*

The novelty of the book by Nikolai Bagdassarov is to introduce, in a didactic way, a good deal of solid state physics in the realm of petrophysics. The author starts with a description of the textures of rocks and introduces in a meticulous way the underlying physics needed to understand their mechanical properties. The exercises will greatly help readers.

Dr. André Revil, *CNRS-Université Savoie Mont-Blanc, France*

This is a welcome contribution to a fascinating field. The author has provided a solid basis for the physical description of the geomaterials of the solid Earth.

Professor Donald Dingwell, *Earth & Environmental Sciences, Ludwig Maximilians Universität, Germany*

Rock physics encompasses practically all aspects of solid- and fluid-state physics. This book provides a unified presentation of the underlying physical principles of rock physics, covering elements of mineral physics, petrology and rock mechanics. After a short introduction on rocks and minerals, the subsequent chapters cover rock density, porosity, stress and strain relationships, permeability, poroelasticity, acoustics, conductivity, polarizability, magnetism, thermal properties and natural radioactivity. Each chapter includes problem sets and focus boxes with in-depth explanations of the physical and mathematical aspects of underlying processes. The book is also supplemented by online MATLAB exercises to help students apply their knowledge to numerically solve rock physics problems. Covering laboratory and field-based measurement methods as well as theoretical models, this textbook is ideal for upper-level undergraduate and graduate courses in rock physics. It will also make a useful reference for researchers and professional scientists working in geoscience and petroleum engineering.



Online Resources

www.cambridge.org/rockphysics

► MATLAB exercises

► solutions manual to end-of-chapter problems

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