BIOSCIENCE / MICROBIOLOGY

GEOMICROBIOLOGY Fifth Edition

Many areas of geomicrobial processes are receiving serious attention from microbiologists, including the role microbes play in the formation and degradation of minerals and fossil fuels and elemental cycling. Most notably, the latest research provides new insights into how microbes affect the transformation of oxidizable and reducible minerals.

Following in the footsteps of its prior editions, ***Geomicrobiology, Fifth Edition*** serves as an introduction to this globally pertinent field and as an up-to-date reference reflecting recent groundbreaking advances. Authored by two of the leading authorities in the field, this book illuminates the processes by which bacteria catalyze geomicrobial reactions. Generously laden with tables, graphics, diagrams, and illustrations, this all-encompassing reference examines the geomicrobial aspects of a wide range of minerals, including aluminum- and arsenic-containing minerals, and various fossil fuels.

In addition to its new chapter on molecular methods in geomicrobiology, this seminal work:

- Contains a new chapter on molecular methods in geomicrobiology
- Summarizes new molecular approaches for the identification of geomicrobial agents *in situ* and mechanistic studies in the laboratory
- Presents a new concept of oxidation of Fe^{2+}, Mn^{2+}, and metal sulfides at the surface of certain gram-negative bacteria involving electron transfer across the cell envelope
- Surveys principles of bioleaching ores

One of life's great mysteries is how it sustains itself even in seemingly inhospitable environments, such as the deep subsurface. The authors anticipate that as mechanistic molecular approaches are increasingly applied to diverse problems in geomicrobiology, this and other fundamental biological puzzles will be resolved.

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