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The Application of Automated SEM-Based Identification of Detrital, Diagenetic and Indicator Mineral Phases

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Message from the Guest Editors

Automated SEM-based instruments (e.g., MLA-SEM, QEMSCAN) provide systematic and quantitative definition of minerals in a full range of sedimentary lithologies ranging from bedrock to surficial sediments; important data for both the petroleum and mining industries. Mapped minerals can include 1) detrital phases that provide data on provenance, 2) diagenetic phases and cements that provide data on physio-chemical conditions at depositional sites, or 3) in surficial sediments, indicator (proxy) minerals derived from source-hosted mineralization. Along with mineral identification, the analyses can furnish data on mineral properties including textures, intergrowths, shapes, and sizes. With sediment core or well cuttings, the technique can provide insight into the provenance and depositional environment of specific stratigraphic intervals, de-risking elements of petroleum systems in regions where little data exist. In surficial sediments, the technology defines the full range of mineral phases present, and specifically indicator minerals that are diagnostic of different types of mineral deposits.

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Message from the Editor-in-Chief

Minerals welcomes submissions that report basic and applied research in mineralogy. Research areas of traditional interest are mineral deposits, mining, mineral processing and environmental mineralogy. The journal footprint also includes novel uses of elemental and isotopic analyses of minerals for petrology, geochronology and thermochronology, thermobarometry, ore genesis and sedimentary provenance. Contributions are encouraged in emerging research areas such as applications of quantitative mineralogy to the oil and gas, manufacturing, forensic science, climate change, geohazard and health sectors.

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