Special Issue

Synthesis and Application of Porous Clay Materials in Heterogeneous Catalysis and Treatment of Hazardous Wastes

Message from the Guest Editor

Clay minerals are hydrous aluminum silicates (bentonite/montmorillonite/kaolinite) and the key constituents of soils containing magnesium, alkali metals, alkaline earths, and other cations. Because of their several valuable properties (ion-exchange capacity, porous structure, large surface area, surface charge, highly crystallinity, and structure stability), clay materials are potentially used in numerous applications, e.g., heterogeneous catalysis (e.g., catalytic conversion in petrochemical industries), removal/sorption of hazardous waste (e.g., toxic metals, radionuclides, and organic contaminants), and as backfill material in nuclear waste disposal. The synthesis of clay materials has an edge over there natural (mineral) counterparts as their properties (ion-exchange capacity, surface area, etc.) could be efficiently altered by controlled synthesis conditions. Moreover, post-synthesis treatment of clay materials (e.g., surface modification) using various organic/inorganic surface modifier can significantly change their potential applications in various fields/sectors.

Guest Editor

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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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