

# Advancements in Zeolites and Micro-Meso Porous Hierarchical Materials

Fabian N. Murrieta-Rico (Universidad Politécnica de Baja California, Mexico)

Joel Antúnez-García (Universidad Autónoma de Baja California, Mexico)

Vitalii Petranovskii (Universidad Nacional Autónoma de México, Mexico)

## Description:

Advancements in zeolites and micro-meso porous hierarchical materials represent a significant leap in the field of materials science, particularly in catalysis, adsorption, and separation technologies. Zeolites, known for their well-defined microporous structures and high thermal stability, have long been utilized in industrial applications such as petroleum refining and environmental remediation. Recent research, however, has focused on enhancing their performance through the development of hierarchical structures that integrate both micropores and mesopores. This micro-meso porosity improves molecular transport and accessibility to active sites, addressing diffusion limitations inherent in purely microporous frameworks. Innovations in synthesis methods, including templating techniques and post-synthetic modifications, have opened new avenues for designing tailored materials with superior efficiency, selectivity, and functional versatility. These advancements are paving the way for more sustainable and efficient processes across chemical, energy, and environmental sectors.

**Advancements in Zeolites and Micro-Meso Porous Hierarchical Materials** explores recent advances regarding zeolites and micro-meso porous hierarchical materials from a theoretical and experimental approach. It examines applications of these materials in various sectors, including chemical, energy, and environmental industries. This book covers topics such as energy engineering, material science, and pollution removal, and is a useful resource for engineers, business owners, academicians, researchers, and scientists.

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## Topics Covered:

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Chemistry  
Energy Engineering  
Environmental Science  
Hierarchical Structures  
High Thermal Stability

Material Engineering  
Material Science  
Micro-Meso Porous Material  
Natural Zeolites  
Petroleum Refining  
Pollution Removal

**Subject:** Physical Sciences and Engineering

**Readership Level:** Advanced-Academic Level (Research Recommended)

**Classification:** Edited Reference

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