

Synthesis, structure solution, characterization, and catalytic properties of zeolites TNU-9 and TNU-10

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Zeolites and related microporous solids find widespread application in many technologies, including ion exchange, separation and catalysis. Their advantages over other solids stem directly from their high surface areas and structure-dependent, pore geometries and cation environments. As a consequence, considerable effort is expended in the design of new zeolitic materials with unique structural features that could lead to improvement or development of new commercial processes. This lecture concentrates on the synthesis of novel zeolite structures in the presence of flexible, linear diquaternary alkylammonium ions as organic structure-directing agents. Medium-pore zeolites TNU-9 and TNU-10 are two successful examples of such a synthetic strategy. Their synthesis, crystal structures, and physicochemical and catalytic properties will be elaborated.