Microporous zeolites and nanoporous materials are important from the academic and industrial research point of view. These inorganic materials have found application as catalysts in several industrial processes in the field of oil refinery, petro-chemical reactions, fine chemicals, drug discovery and pharmaceutical synthesis, exhaust emission control for stationary and mobile engines, and industrial waste water treatment. Furthermore, the possibility to tune the amount and strength of Brønsted and Lewis acid sites and the crystal size and to introduce modifications with transition and noble metals are the key to the successful design of efficient, highly selectivity, and stable catalysts. The Special Issue includes following topics: Novel zeolite and nanoporous materials synthesis; Advanced technology for catalyst preparation; Design of catalytic active sites; Transition and noble metal modifications; Nanoporous materials crystal engineering; Physico-chemical catalyst characterization; Catalytic applications: Petro-chemicals, Environmental catalysis; Biodiesel, Biofuels from renewables; Fuels and Chemicals from biomass.