

Creation and diversification of novel porous materials with controllable nanospaces and sophisticated molecular recognition functions

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【Outline of survey】

We have been studying the inorganic nanoporous materials with different sizes, structures and components, *e.g.*, zeolites, mesoporous silicas and silica nanospheres. Each of the materials has both advantages and disadvantages in terms of functionality, stability and pore size of the materials. In this project, we aim to diversify the size and structure of nanospace and components of nanostructures to integrate the advantages and surmount the disadvantages. The final objectives are to develop novel porous materials with controllable nanospaces and sophisticated molecular recognition functions.

【Expected results】

We plan to synthesize novel porous materials to integrate advantages of the basic materials. We intend to develop several novel kinds of zeolite with extra-large nanospaces, mesoporous material with unique and stable frameworks and well-ordered nanosphere with uniform interstitial space that have never been reported yet. It is expected that manipulation of the properties that control the interaction with various organic and inorganic guest species leads to a wide diversity of applications in environmentally benign and highly efficient reactions.

【References by the principal investigator】

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【Term of project】 FY2007 – 2011

【Budget allocation】 36,000,000 yen

(2007 direct cost)

【Homepage address】

<http://www.res.titech.ac.jp/~shokubai/tatsumi/top.html>