Nanospace Catalysis Unit

Zeolite– Enabler for Sustainability

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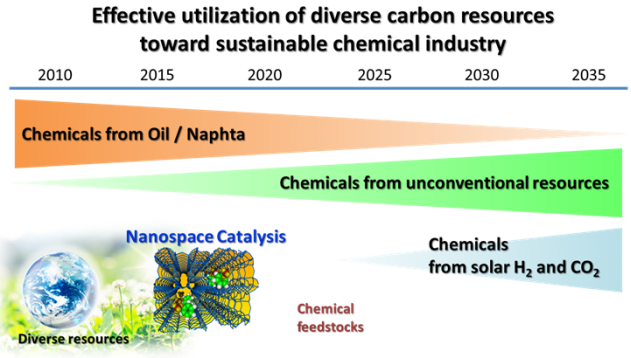
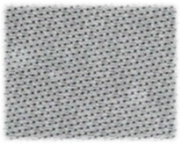
- Development of novel nanospace catalyst
- Selective production of light olefins from diverse carbon resources
- Advanced characterization of nanospace catalysts

"Nanospace Catalysis Unit" focuses on nanospace materials such as zeolite and mesoporous materials, and tackle a control of structure of nanospace and its functionalization. This research unit aims to create nanospace catalyst that can make efficient use of diverse resources on the planet and that can contribute to the development of green production of chemical feedstock and value-added chemicals.



Novel nanospace catalysts

➢Zeolites

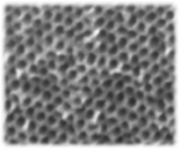


0.3-1.0 nm

- ➢Hydrothermal synthesis
- ➢Zeolite transformation
- ➢Template-free synthesis
- ➢Core-Shell structure
- ➢Distribution of hetroatom

… …

➢Mesoporous Materials

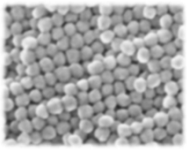


1-20 nm

- ➢Monodisperse spherical mesoporous silica
- ➢Porous silica with chiral mesospace

… …

➢Nano Particles



5-500 nm

Methane, which is a main component of natural gas and shale gas, is an alternative carbon resource to petroleum, and the development of novel technologies that can convert methane easily into chemicals has strongly been desired. Therefore, we are also tackling the development of novel nanospace catalysts for direct conversion of methane into syngas, methanol followed by lower olefins.