

OGURA LAB.

[Molecule-sized Nano Space and Catalysis]

Institute of Industrial Science, Department of Materials and Environmental Science

Department of Chemical System Engineering

<http://www.ogulab.iis.u-tokyo.ac.jp>

Nano Space and Catalysis

Our research group tackles on the environmental, and resources and energy problems using nano porous materials.

Nano-sized space allows us to...

e.g.,)

- Store and concentrate materials and energy
- Capture harmful chemicals
- Select or sieve molecules by their size and chemical properties
- Anchor the catalytic site in the nano space
- Catalyze space-selective reactions

Unique Adsorbent

Unique Catalyst

➔ Create The Truly Useful Catalysts via A Design of Nano Space Reaction

Approaches in Ogura Lab

Environment

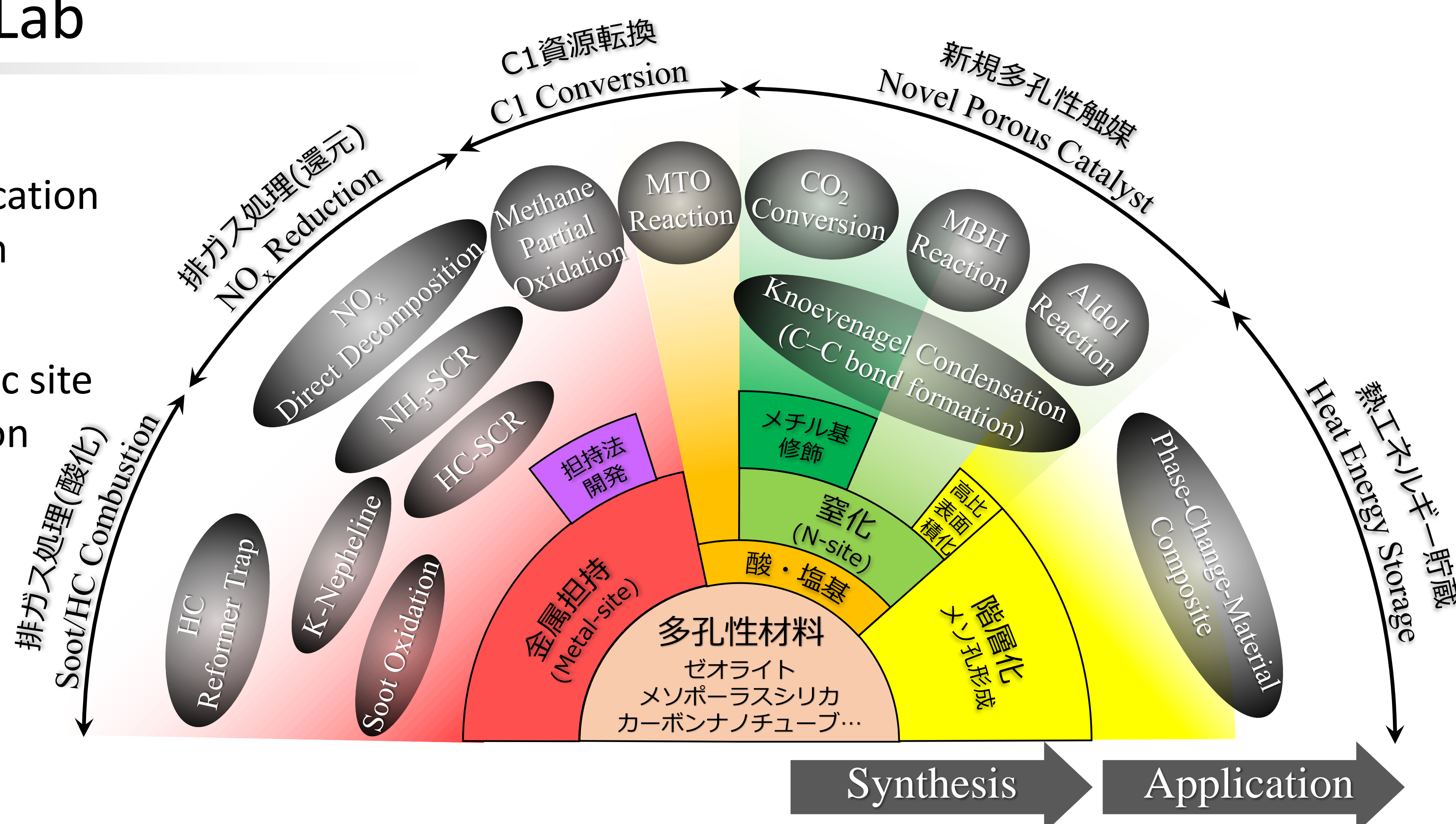
- Catalysis for exhaust gas purification
- Exhaust gas purification system

Resources

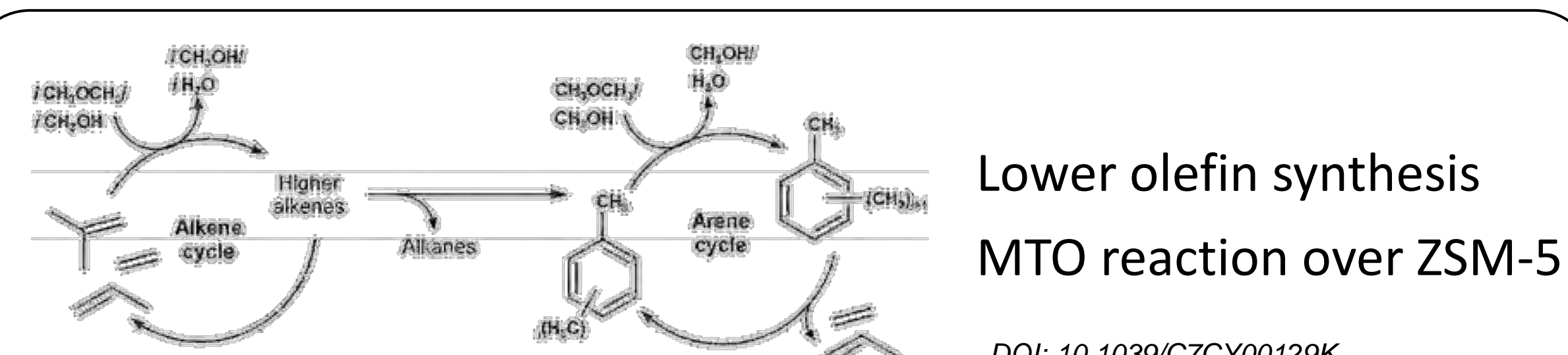
- Novel porous catalyst / catalytic site
- Catalysis for C1 / CO₂ conversion
- C-C bond formation reaction

Energy

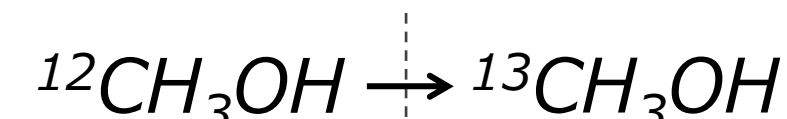
- Thermal energy storage
- Heat release-store process



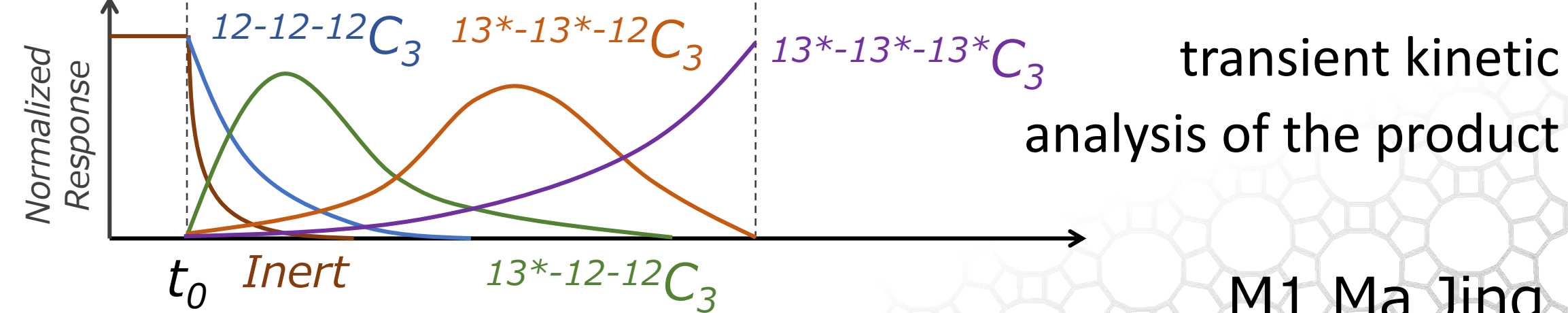
Methanol to olefins reaction



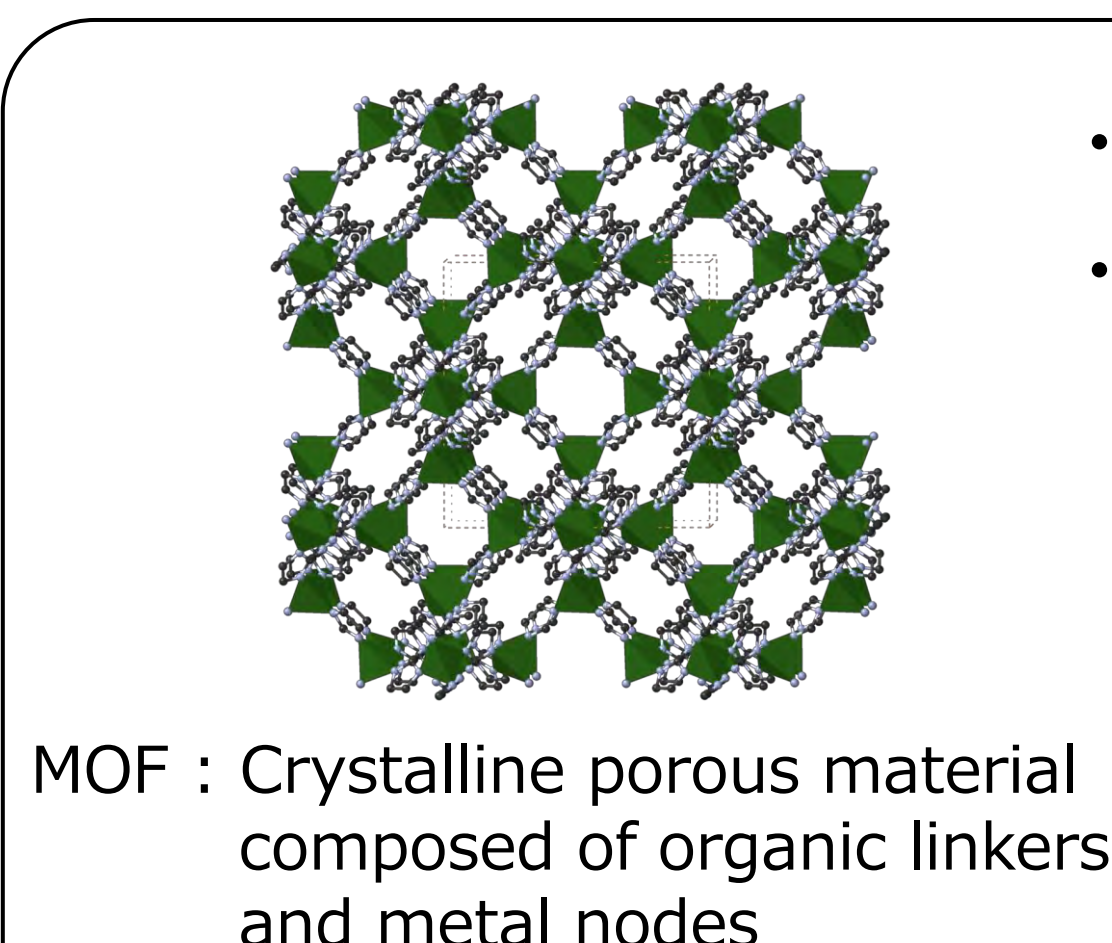
Reactant labeling



Complex Reaction Analysis
by Reaction Engineering



NO adsorption



- Metal as an adsorption site
- Carbon as a support

Materials design using organic-inorganic hybrid as a precursor

Novel NO cold trap

Adsorption site formation via break of crystalline framework



M1 Ge Jiachen