

SUNADA LAB.

Precise Design of Functional Metal Clusters



Research Center for Sustainable Material Energy Integration
Department of Materials and Environmental Science

Functional Metal Cluster Science

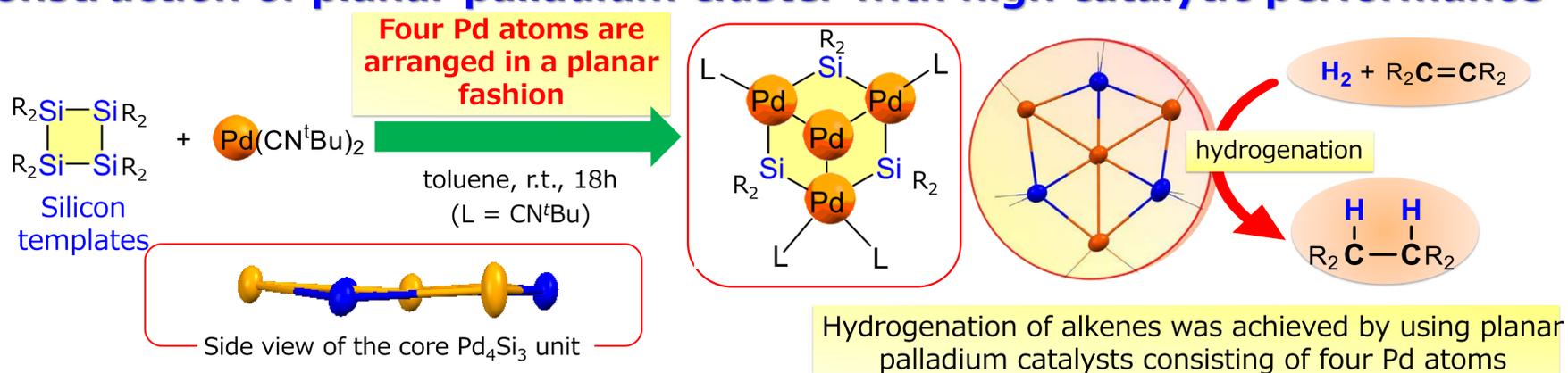
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Development of well-designed sub-nano and nano sized metal aggregates as functional catalysts

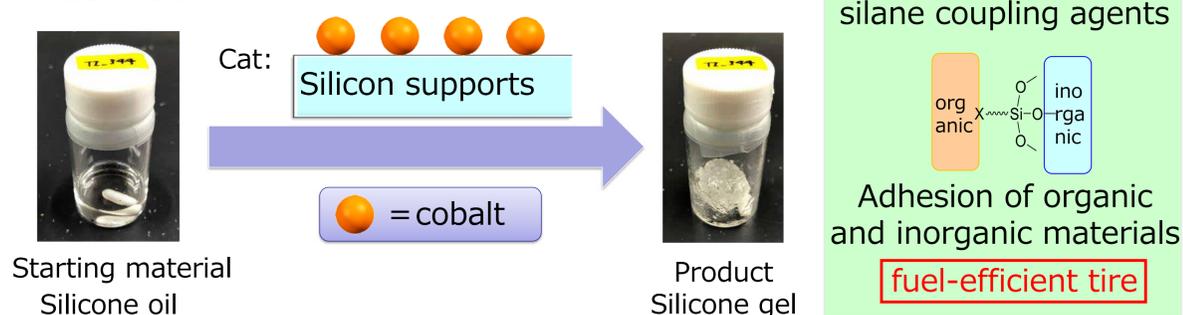
Sub-nano and nano-sized metal aggregates have attracted much attentions because they can function as effective catalysts in synthesis of fine chemicals. In addition, sub-nano and nano-sized metal aggregates are expected to be the key catalysts for the effective utilization of next-generation energy sources, such as hydrogen. In our laboratory, construction of well-designed metal aggregates showing high catalytic performance is under way.

Construction of planar palladium cluster with high catalytic performance



- ✓ Well-designed metal cluster catalysts can be easily synthesized
- ✓ Metal arrangement can be finely tuned by “silicon templates”
- ✓ Highly active catalyst with minimum number of metal atoms

Linearly arranged cobalt aggregates as catalyst for the production of silicones



Silicones are the key starting material for the production of various functional materials