1. Introduction

Mesocrystals (MCs) are superstructures with a crystallographically ordered alignment of nanoparticles and have some unique characteristics such as high-specific surface area, pore accessibility, good electronic conductivity and thermal stability.

MCs are also an ideal platform for constructing functional materials that can solve a variety of tasks. The development of Metal Oxide MCs opens up exciting new opportunities for constructing much more efficient devices.

2. Newly Invented “Facile and General” MCs’ Fabrication Method

The novel manufacturing method can synthesize Metal Oxide MCs facile and in a general way by utilizing topotactic structural transformation.

3. Characteristics of Metal Oxide MCs

The photodecomposition capability of TiO$_2$ “MC” has been greatly improved due to its large surface area ($\geq 65$ m$^2$/g) and its aligned [001] surface.

4. Prospective Applications

- Catalysis
- Sensing
- Electrode
- Surface coating material

5. Patent Licensing Available

JST/ IP Management and Licensing Group  Phone: +81-3-5214-8486  E-mail: license@jst.go.jp

http://www.jst.go.jp/tt/EN/