Simposio Internacional / International Symposium:

Materiales mesoporosos: de 1991 a 2018

Mesoporous materials: from 1991 to 2018

Madrid, 10 y 11 de abril de 2018 / April 10 and 11, 2018

ABSTRACT

Preparation of mesoporous silica and related materials based on silicate-organic interactions

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Materials containing mesoporosities have been studied from both scientific and practical viewpoints such as synthesis, formation mechanism, structural characterization, porosity control, adsorption, separation, catalysis, confined reaction media, biomedical applications. Since the discovery of mesoporous silica, studies on mesoporous materials with various compositions and mesostructures have extensively been developed. Among various kinds of mesoporous materials, mesoporous silica has been most widely studied.

The preparation of mesoporous silica mostly depends on the templating method and typical templates are surfactant micelles. Hard-templates composed of carbon and silica have also been frequently used for precise design of porous materials. Precise design of starting materials opens a new avenue for designing mesoporous materials. Morphological control of mesoporous silica has been studied extensively, and some research results on mesoporous silica thin films and nanoparticles will be mentioned.

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Basically all the surfaces of surfactant micelles are used for preparation of mesoporous materials, but recently we have found that only the outermost surfaces of surfactant micelles can be used as a two-dimensional mold for nanopatterning on Si surfaces, which indicates a different potential use of surfactant micelles for nanostructuration. The applications of precisely controlled mesoporous materials will be further developed by scientific progress of this field.