

Orientation of Mesochannels in Continuous Mesoporous Silica Films by a High Magnetic Field

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Electronic Supporting Information

Extra data for the films prepared under a high magnetic field

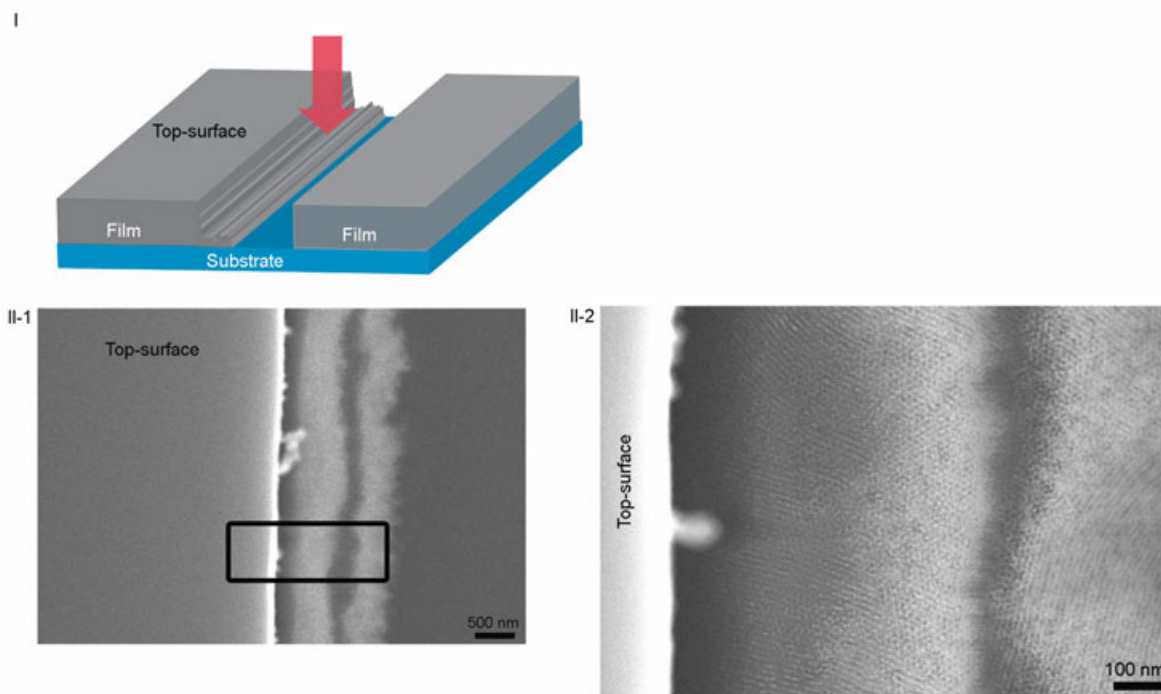


Fig. A I) Schematic presentation of the view of the uneven part of the film produced by cracking. II) HR-SEM images of the calcined Film E prepared under the perpendicular magnetic field to the substrate. [II-1); The entire morphology of the film at a low magnification, II-2); tubular mesochannels and honeycomb-like arrangements of mesopores.]

Characterizations

XRD measurements: The θ - 2θ scanning profiles in the lower diffraction angles were measured by a Mac Science M03XHF22 diffractometer with Mn-filtered Fe-K α radiation (40 kV, 20 mA) at a scanning rate of 0.5 °/min. The in-plane XRD study was performed on an X-ray diffractometer equipped with a four-axes goniometer (Rigaku ATX-G) using Ni-filtered Cu-K α radiation (50 kV, 300 mA). The incident angle of X-rays was set at 0.3°.

TEM and SEM observations: The cross-sectional slices of as-grown film C, less than 100 nm in thickness, were prepared by using an ultramicrotome. TEM images were observed by a JEOL JEM-2010 transmission electron microscope using an accelerating voltage of 200 kV. The high resolution scanning electron micrographs with osmium coating were observed with a Hitachi S-5200 scanning electron microscope using an accelerating voltage of 20 kV.