

Experimental section for preparation of mesoporous silica from CTAB-based solution

The precursor solution was prepared using TEOS, C₁₆TAB, HCl, C₂H₅OH, and H₂O (with a molar ratio of 1.0 : 0.14 : 0.015 : 3.5 : 8.2 = TEOS : C₁₆TAB : HCl : C₂H₅OH : H₂O). The spin-coated films were dried at 25 °C. For the preparation of the linear resist molds, we optimized the doses. As shown in **Figure S1**, fewer doses resulted in uncompleted patterns (**Figure S1a**) while overdoses caused trapezoidal patterns (**Figure S1d**). Here we selected the linear resist molds with a width of 0.25 μm, height of 0.5 μm, and pitch of 1 μm.

Figure S1

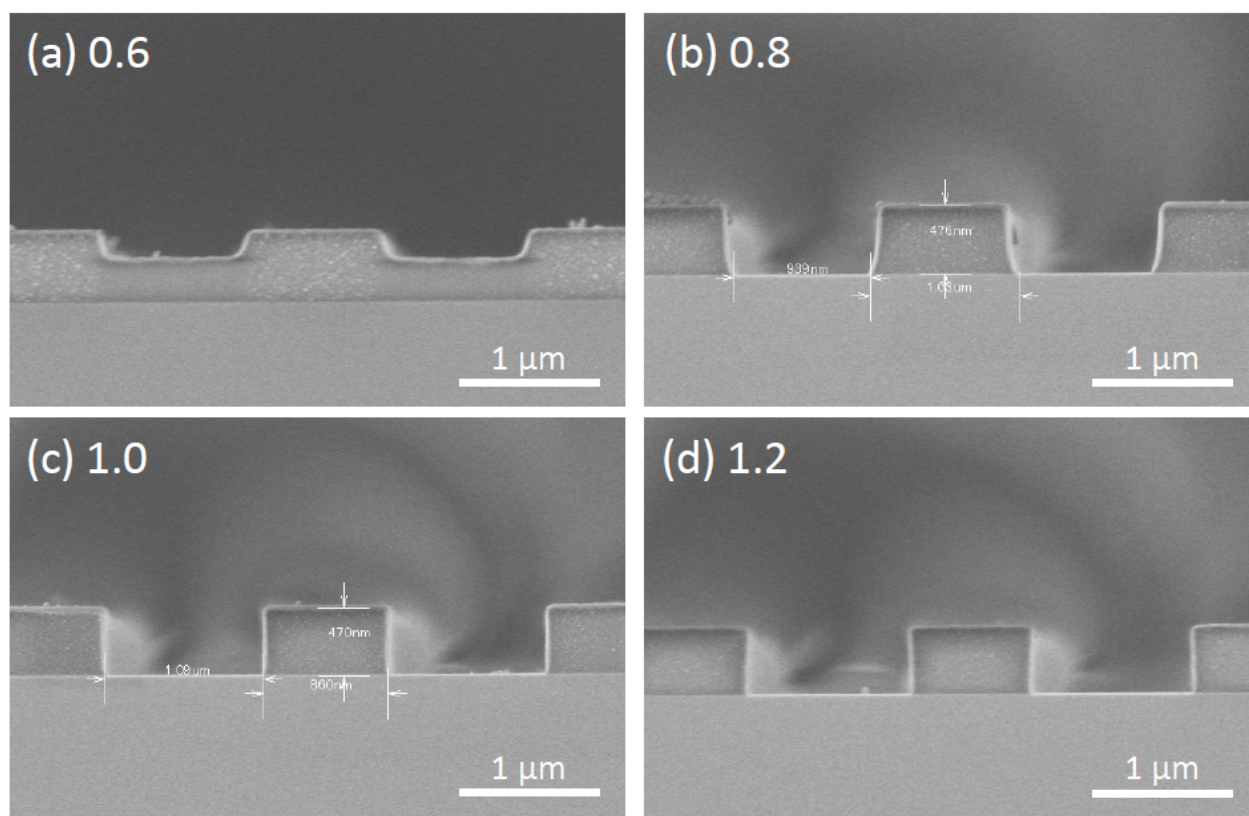


Figure S1 SEM images of linear patterns prepared by different doses ((a) 0.6, (b) 0.8, (c) 1.0, and (d) 1.2).

Figure S2

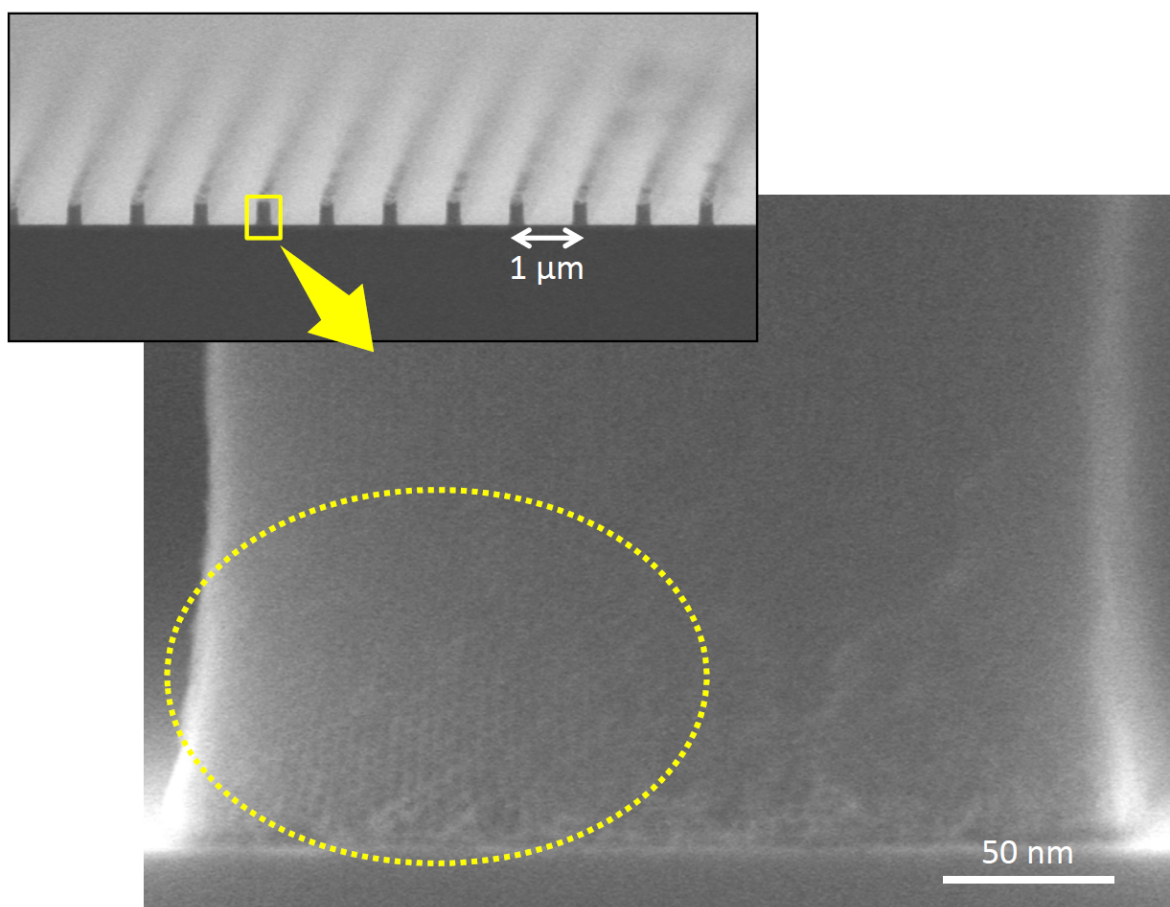


Figure S2 Low- and high-magnified cross-sectional SEM images of CTAB-templated mesoporous silica patterns prepared by linear resist molds with a width of 0.25 μm, height of 0.5 μm, and pitch of 1 μm. The images are viewed from direction parallel to the line patterns.

Figure S3

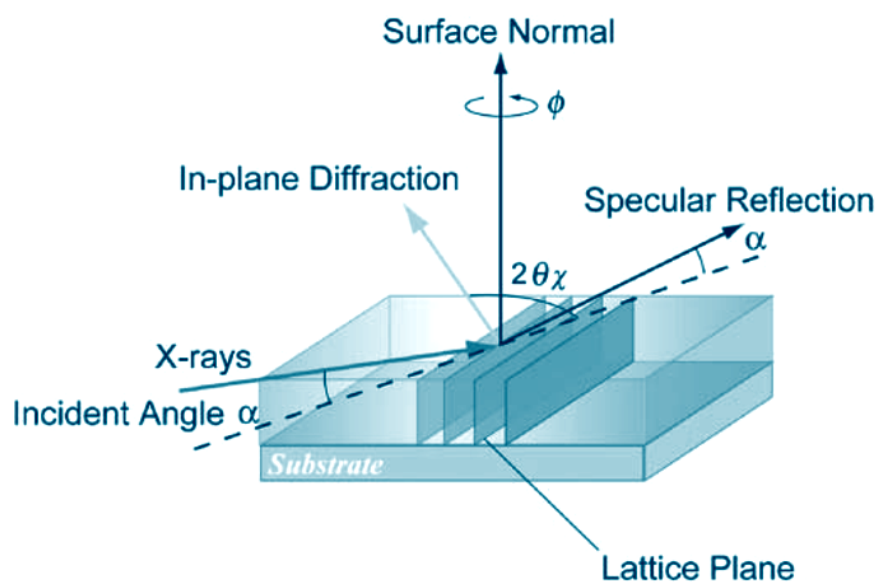


Figure S3 Geometry model of the in-plane XRD diffraction.