Figure 4. The [100], [111] and [110] projections of a typical diamond structure with *Fd3m* space group are as follows:

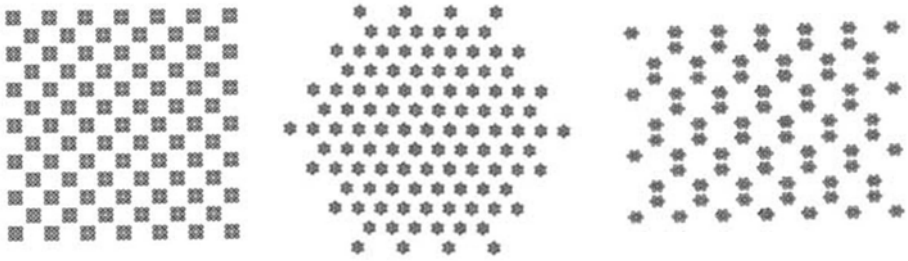
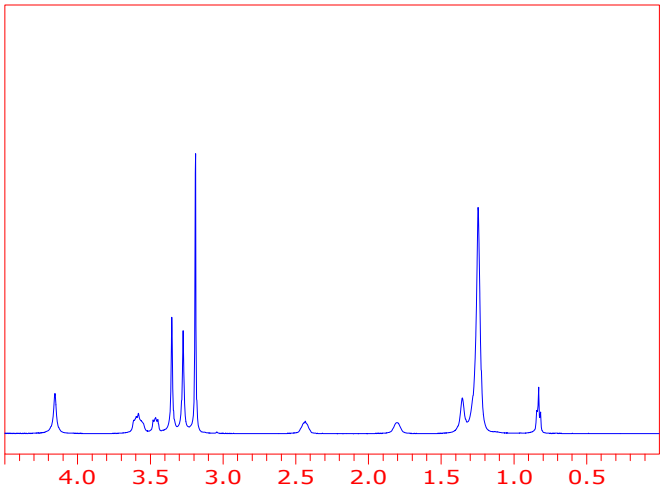


Figure 5. ^{1}H NMR spectrum for the tri-head-group surfactant $C_{18}H_{37}N(CH_3)_2C_3H_6N(CH_3)_3\bullet 3Br$ ($C_{18\text{-}2\text{-}3\text{-}1}$). The spectrum was measured on Brucker DMX 500 spectrometer at 500MHz with D_2O as a solvent.



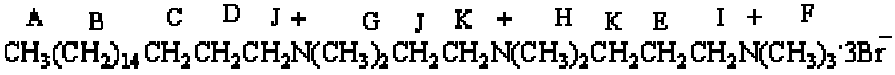
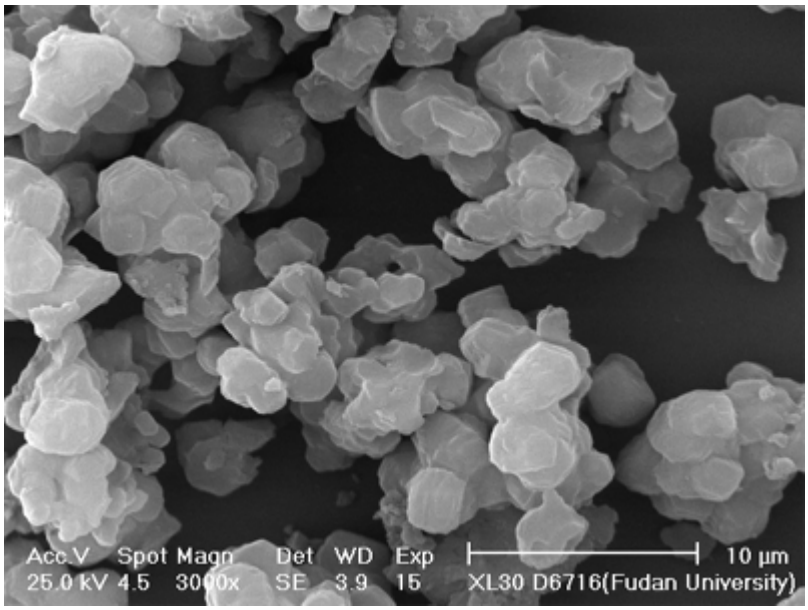


Table 1 Assignment and chemical shift data of ^{1}H NMR spectrum for the tri-head-group surfactant $C_{18}H_{37}N(CH_3)_2CH_2CH_2N(CH_3)_2C_3H_6N(CH_3)_3\bullet 3Br$ ($C_{18\text{-}2\text{-}3\text{-}1}$).

Assignment	A	B	C	D	E	F
Chemical Shift (ppm)	0.830	1.245	1.354	1.802	2.434	3.188
Assignment	G	H	I	J	K	
Chemical Shift (ppm)	3.273	3.350	3.463	3.580	4.154	

The elemental analysis (%) calcd for the tri-head-group surfactant $C_{18}H_{37}N(CH_3)_2CH_2CH_2N(CH_3)_2C_3H_6N(CH_3)_3\bullet 3Br$ ($C_{18\text{-}2\text{-}3\text{-}1}$) is C 50.7, H 9.68, N 5.92; found: C 48.5, H 9.74, N 5.95.

Figure 6. SEM image for as-synthesized mesoporous silica prepared by using $C_{18\text{-}2\text{-}3\text{-}1}$ as a structure-directing agent under base condition at 17°C.



Experimental Characterization:

X-ray powder diffraction (XRD) patterns were taken on a Bruker D4 Endeavor diffractometer by using Cu K α radiation with voltage 40 kV and current 40 mA. The nitrogen adsorption/desorption isotherms were measured at 77 K by using a Micromeritics ASAP 2010 system. The samples were degassed at 250 ºC for 3 hour. The transmission electron micrographs (TEM) were taken on a 2010 JEOL electron microscope operating at 200 kV. The samples were mounted on a holy carbon copper grid by placing a droplet of a suspension of ground sample in Scan electron micrographs (SEM) were taken on a XL 30 Philips 25 kV.