

Electronic Supplementary Information

A visual and organic vapors sensitive photonic crystal sensor by polymer-infiltrated SiO₂ inverse opal

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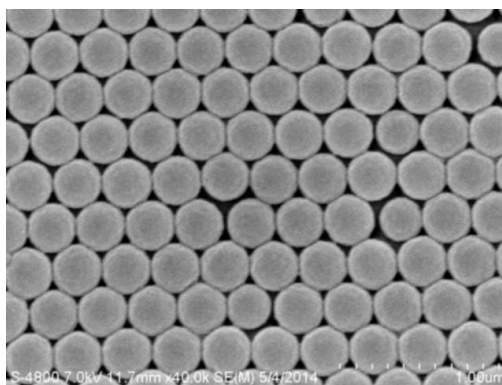


Fig. S1 SEM image of poly (styrene-acrylic acid) microspheres. The average diameter is 340 nm.

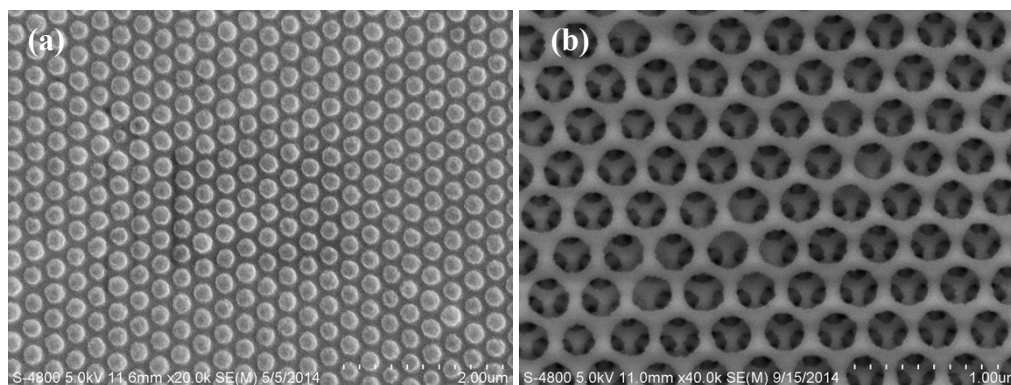


Fig. S2 SEM images of the co-assembly PC film (a) of P(St-AA) microspheres and SiO₂ precursor colloidal crystal, and SiO₂ IOPC (b).

Table S1 The refractive indices (n_D^{20}) of some solvents

Solvents	n_D^{20}
Tetrahydrofuran	1.4072
Acetone	1.3587
Benzene	1.5011
Toluene	1.4969
Diethyl ether	1.3524
Chloroform	1.4458
Petroleum ether (60-90 °C)	1.428
Methanol	1.3284
Ethyl acetate	1.3724
Ethanol	1.3614
H ₂ O	1.3330

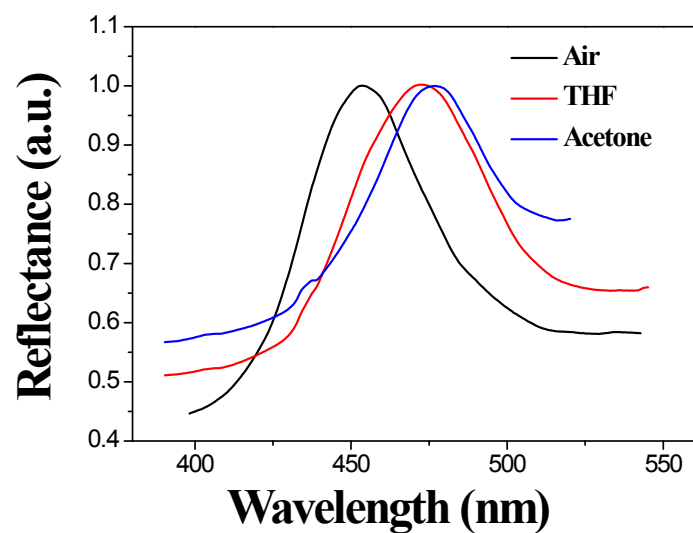


Fig. S3 The normalized reflectance spectra of PMMA-SiO₂ IOPC exposed to air, the saturated vapors of THF and acetone. There are the stopband shifts of 19 nm and 23 nm when exposed to the vapors of THF and acetone, respectively.

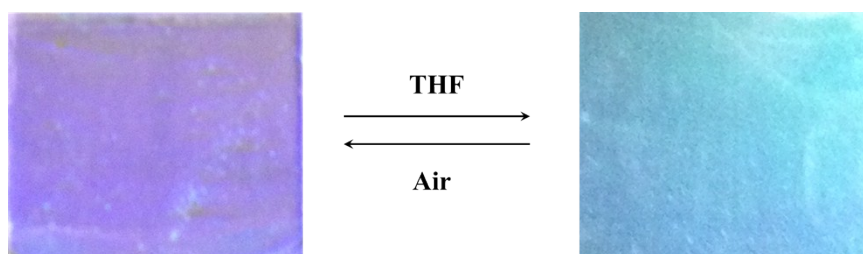


Fig. S4 The photographic images of TPEP-SiO₂ IOPC exposed to THF vapor and air.