Supporting Information

Synthesis of Emissive Water-Soluble Network Polymers Based on Polyhedral Oligomeric Silsesquioxane and Their Application as an Optical Sensor for Discriminating the Particle Size

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Characterization of POSS-BT(n).

Figure S1. $^1$H NMR spectrum of the POSS-BT(2) in D$_2$O at 25 °C (400 MHz).

Figure S2. $^{29}$Si NMR spectrum of the POSS-BT(2) in D$_2$O at 25 °C (80 MHz).
**Figure S3.** TEM images of silica particles. The diameters and size distributions were calculated as an average and a standard deviation with 100 particles in the TEM images, respectively.
Figure S4. Averaged diameters and size dispersions of the SPs used in this study. The values were calculated with randomly-selected 100 particles observed in the TEM images.
Figure S5. Typical emission spectra of the samples containing POSS-BT(2) and SPs before and after centrifugation.
Figure S6. Influence of the concentration change of SPs in the samples on the emission peak from POSS-BT(2).