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## **Supporting information**

Bright emission and high photoluminescence CsPb<sub>2</sub>Br<sub>5</sub> NCs encapsulated in mesoporous silica with ultrahigh stability and optical properties for excellent white light emitting diodes

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Fig. S1. Schematic illustration of formation of the NCs-MS nanocomposites.



Fig. S2. TEM image of the NCs-MS nanocomposites.



Fig. S3. TEM image of MS.



Fig. S4. HAADF-STEM image of the NCs-MS nanocomposites.

Site	Element	at. %	Cs:Pb:Br
1	Br	62.46	1:2:5
	Pb	25.02	
	Cs	12.52	
2	Br	62.55	
	Pb	24.92	
	Cs	12.53	
3	Br	62.53	
	Pb	24.89	
	Cs	12.58	

Table S1. Calculation results of the STEM-EDS for NCs in the NCs-MS nanocomposites.



Fig. S5. (a, b) STEM-EDS elemental mappings of Si and O, respectively.



Fig. S6. (a, b, c) The high resolution XPS analysis spectra of Cs 3d, Pb 4f and Br 3d for NCs.



Fig. S7. EL spectrum of the WLED based NCs-MS nanocomposites.



Fig. S8. The relative EL intensity of the LED devices.