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Supporting Information

One-step solvent-free synthesis of carbon dot-based layered composites exhibiting color-tunable photoluminescence

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1. Thermal properties of the carbon dot/saponite composites

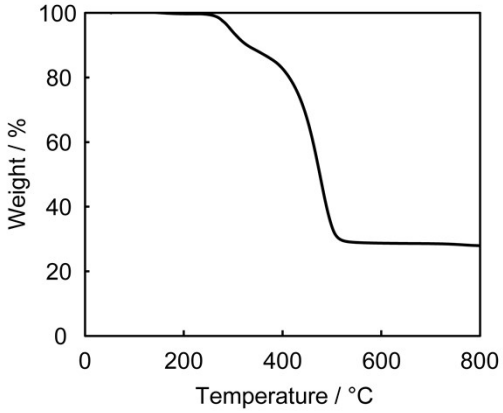

Fig. S1 Thermogravimetric curve of the **P-CD1**(71)/saponite composite.

2. Hybrid structures of the carbon dot/saponite composites

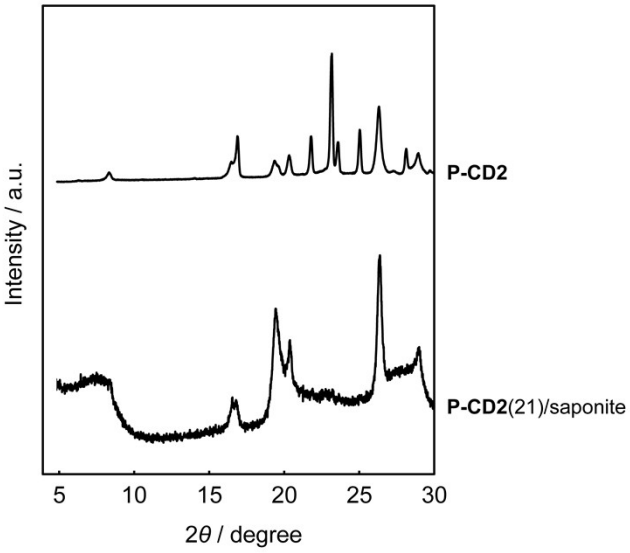

Fig. S2 X-ray diffraction patterns of **P-CD2** and the **P-CD2**(21)/saponite composite.

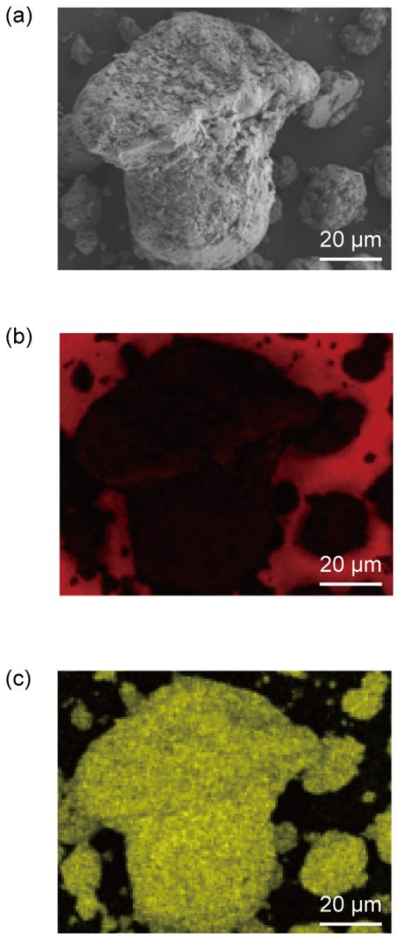

Fig. S3 Comparison of (a) scanning electron microscope (SEM) image with (b) C and (c) Si mapping of the surface of the **P-CD1**(21)/saponite composite.

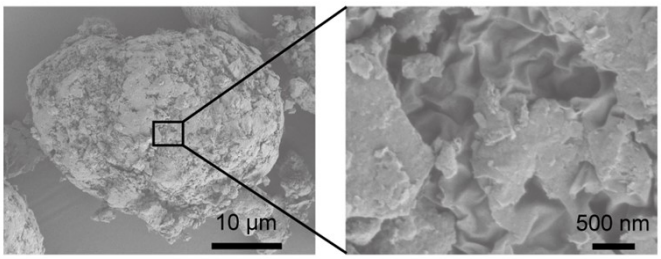

Fig. S4 SEM images of saponite used in this study.

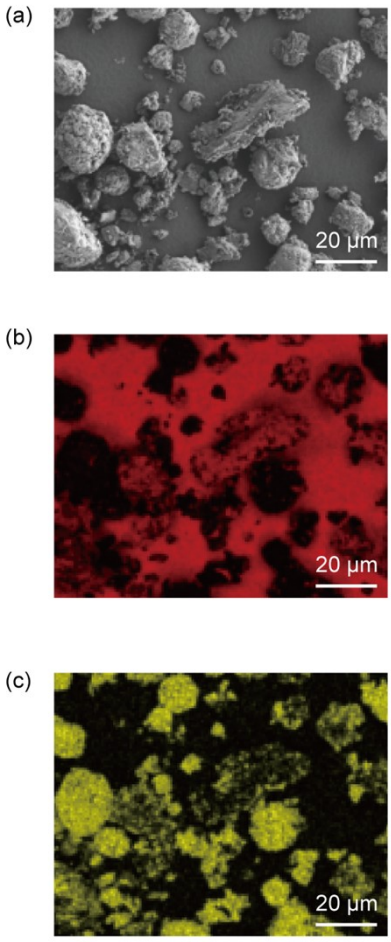

Fig. S5 Comparison of (a) SEM image with (b) C and (c) Si mapping of the surface of the **P-CD2**(21)/saponite composite.

3. Photophysical properties of the carbon dot/saponite composites

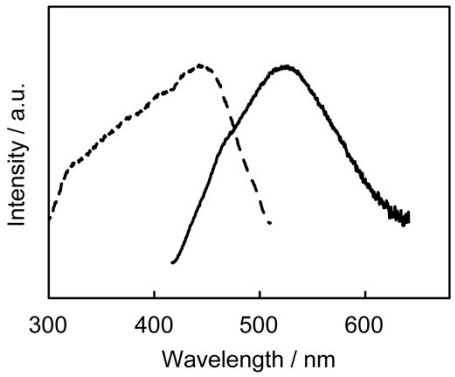

Fig. S6 Normalized excitation (dashed line) and emission spectra (solid line) of the **P-CD1**(10)/saponite composite (λ_{em} = 525 nm, λ_{ex} = 400 nm) in the solid states.

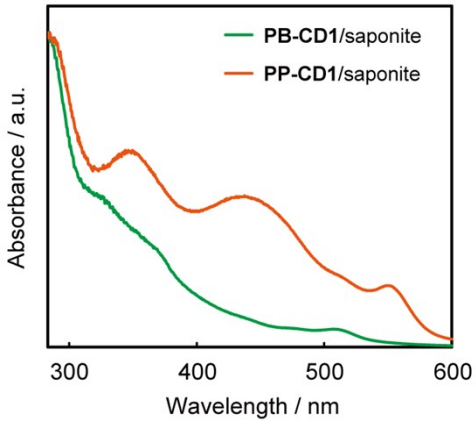

Fig. S7 UV-vis absorption spectra of the **PB-CD1**/saponite and **PP-CD1**/saponite composites.

4. X-ray photoelectron spectroscopy (XPS) study of the carbon dots

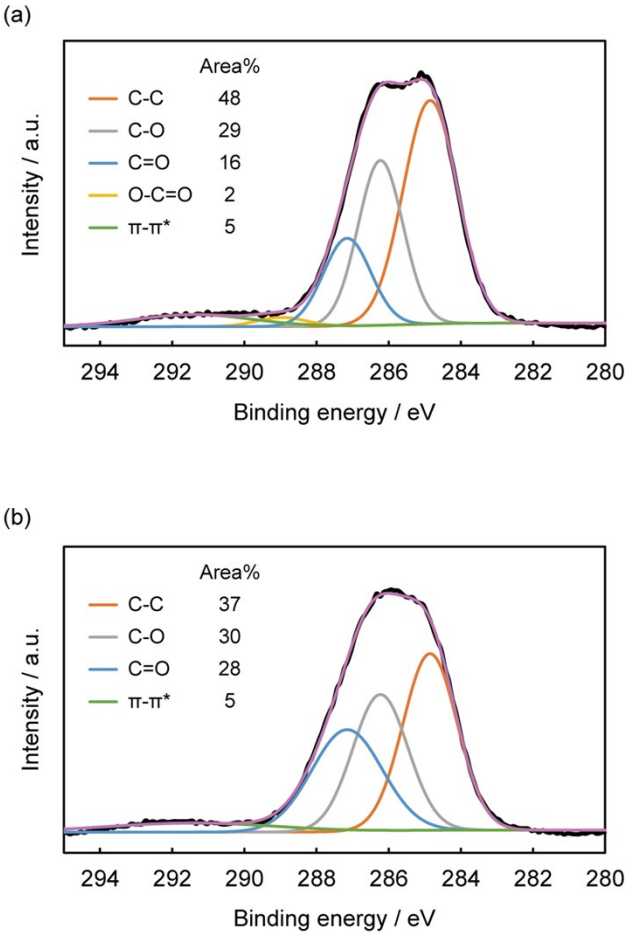

Fig. S8 XPS analysis of the C 1s region for (a) **P-CD1** and (b) **P-CD2**.

5. UV-vis absorption properties of the carbon dots

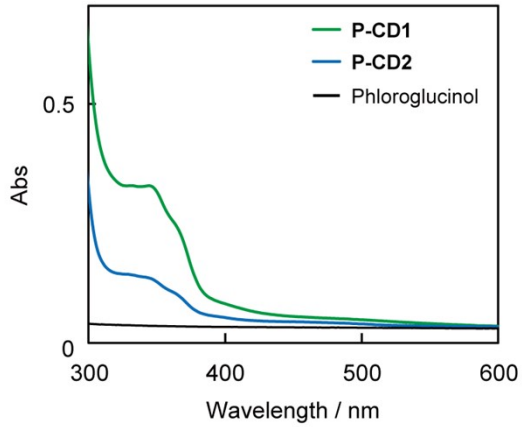

Fig. S9 UV-vis absorption spectra of **P-CD1**, **P-CD2**, and phloroglucinol in methanol solution (0.1 g L^{-1}).