Electronic Supplementary Material (ESI) for CrystEngComm

Supporting Information

Controlled Synthesis of $Gd_2(WO_4)_3$ Microstructures and Their Tunable Photoluminescent Properties

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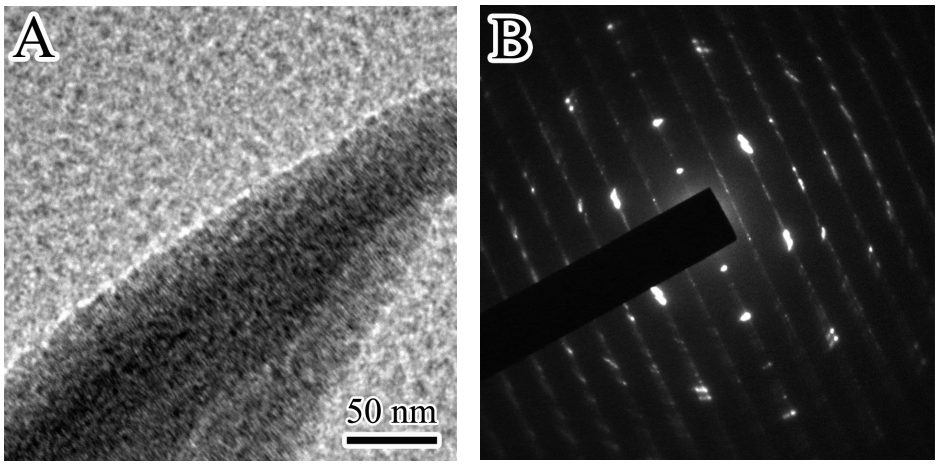

Figure S1. Typical TEM image (A) and corresponding SEAD pattern (B) of a single leaf in a microstar. The leaf was obtained with an ultrasonic treatment on the microstars in ethanol. The SEAD pattern of the leaf is much similar to that of the microbelts (refer to Fig. 3B), suggesting that they have very similar structural characteristics.

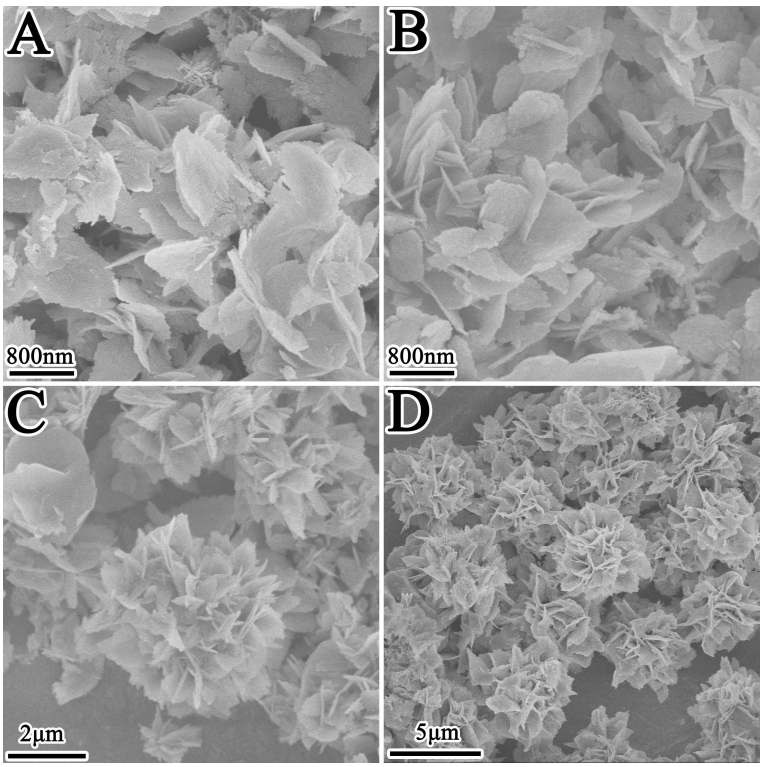

Figure S2. SEM images of intermediate products obtained during the synthesis of $Gd_2(WO_4)_3$ microflowers. The samples were collected at different time intervals: (A) 6 h; (B) 12 h; (C) 24 h; (D) 36 h. These images show that the $Gd_2(WO_4)_3$ microflowers were gradually assembled by thin nanosheets that were initially formed upon the addition of surfactant CTAB.

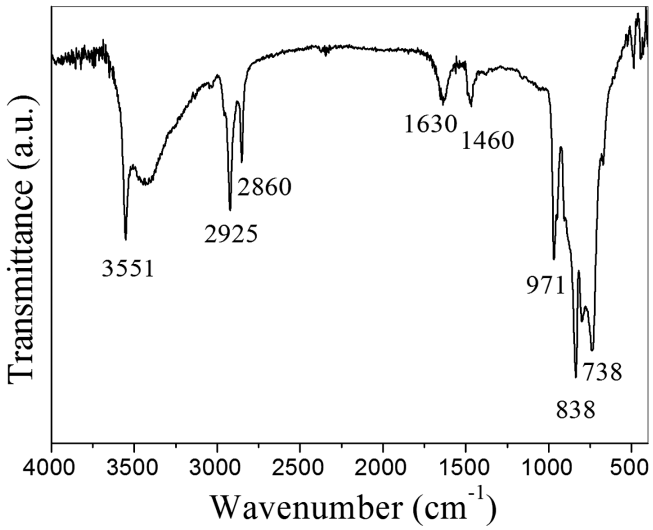

Figure S3. FTIR spectrum of $Gd_2(WO_4)_3$ microflowers. The peaks at 738 cm^{-1}, 838 cm^{-1} and 971 cm^{-1} are attributed to WO_4^{2-} group, while the peaks at 1630 cm^{-1} and 3420 cm^{-1} can be assigned to absorbed water on surface. The peaks at 3551 cm^{-1}, 2925 cm^{-1}, 2860 cm^{-1} cm^{-1} and 1460 cm^{-1} are from $–N(CH_3)_3$ and $–CH_2–$ groups of CTA^+ ions, suggesting the existence of CTAB on $Gd_2(WO_4)_3$ microflowers due to strong gravitation between CTA^+ and WO_4^{2-}.

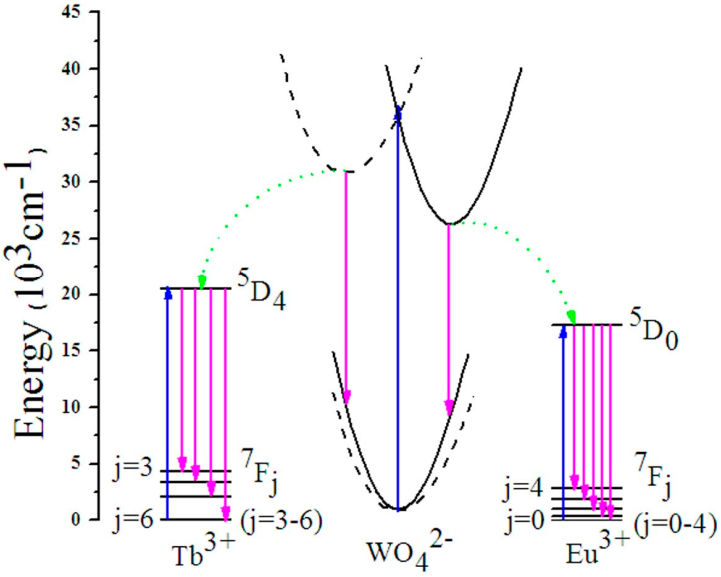

Figure S4. Schematic diagram of energy transfer in the Eu^{3+} and/or Tb^{3+} doped $Gd_2(WO_4)_3$ microstructures. The WO_4^{2-} group has a wide and strong absorption band around 270 nm, and can effectively transfer energy to Tb^{3+} and Eu^{3+} ions and give multicolor visible emissions.