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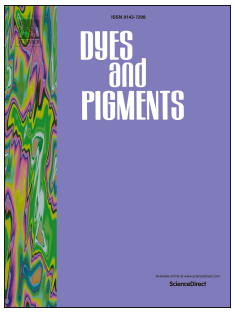

Red upconverted luminescence in controllable self-assembled RE_2O_3: Yb^{3+}/Er^{3+} (RE = Gd, Y) 3D nanoflowers

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Red Upconverted Luminescence in Controllable Self-assembled RE_2O_3: Yb^{3+}/Er^{3+} (RE = Gd, Y) 3D Nanoflowers

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Abstract:

Self-assembled three-dimensional RE_2O_3: Yb^{3+}/Er^{3+} (RE = Gd and Y) nanoflowers were synthesized after heating the gadolinium or yttrium carbonate hydrate precursor at high temperature, in which precursors were obtained by a facile co-precipitation process. The precursors and the final products were characterized by X-ray diffraction (XRD), Fourier transform infrared (FTIR) spectra, scanning electron microscopy (SEM), transmission electron microscopy (TEM), and photoluminescence (PL) spectra. The factors those affect the morphology of the final products, including RE-to-urea ratio, pH value of initial solution, reactive temperature and time, were optimized. The formation process of 3D flower-like structure was demonstrated as