Supporting Information

A bifunctional Cr/Yb/Tm: $Ca_3Ga_2Ge_3O_{12}$ phosphor with near-infrared long-lasting phosphorescence and upconversion luminescence

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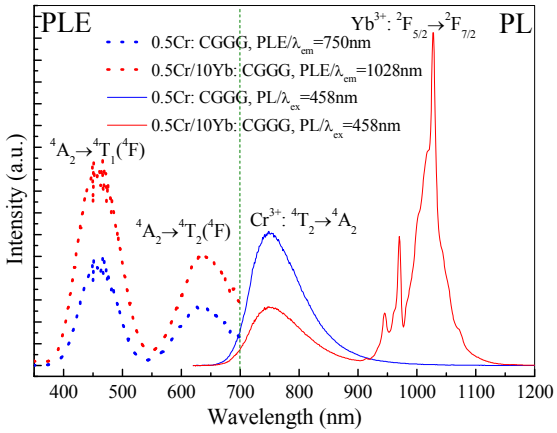

Figure S1 Photoluminescence excitation (PLE) and photoluminescence (PL) spectra of Cr: CGGG and Cr/Yb: CGGG samples, demonstrating the existence of sensitized emission of Yb^{3+} upon excitation into Cr^{3+}.

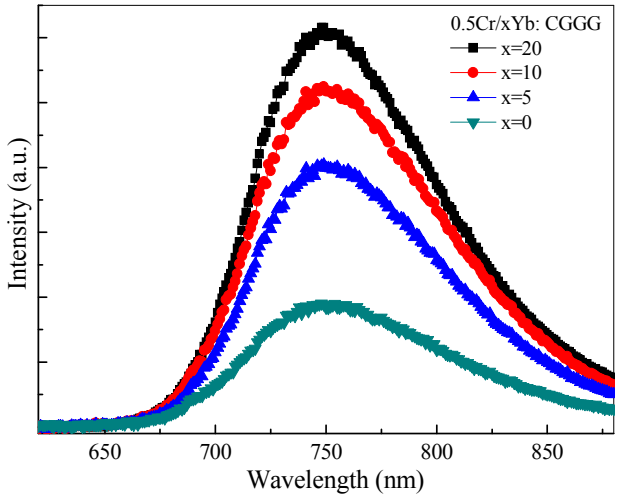

Figure S2 Long-lasting phosphorescent spectra of various Cr/Yb co-doped CGGG samples after 10 s decay (excitation condition: 286 nm light illumination for 200 s)