Supporting Information

Superior white light emission and color tunability of tri-doped YBO$_3$:Tb$^{3+}$, Eu$^{3+}$ and Dy$^{3+}$ for white light emitting diodes

Kaushik Das,a Archis Marathe,a Xianwen Zhangb, Zhi Zhao*c and Jharna Chaudhuri*a

aDepartment of Mechanical Engineering, Texas Tech University, Lubbock, Texas, USA, Fax:+806-742-3540,
Tel:+503-509-8421

bSchool of Automobile and Transportation Engineering, Hefei University of Technology, Hefei, Anhui 230009, China.

*cHefei National Laboratory for Physical Sciences on at the Microscale, University of Science & Technology of China, Hefei, Anhui 230026, China

*Corresponding authors: jharna.chaudhuri@ttu.edu, zhizhao@ustc.edu.cn
Fig. S1 Energy dispersive X-ray spectroscopy (EDS) Spectra of the sample YBO$_3$: Dy$^{3+}$ 2%, Tb$^{3+}$ 5%, Eu$^{3+}$ 4%.
Fig. S2 (a) Overlap of the emission spectra of undoped YBO$_3$ and co-doped YBO$_3$: Dy$^{3+}$ 2% and Eu$^{3+}$ 18% under the excitation at 365 nm. (b), (c), (d), (e) and (f) Overlap of the emission spectrum of undoped YBO$_3$ and the emission and excitation spectra of co-doped YBO$_3$: Dy$^{3+}$ 2% and Eu$^{3+}$ 18% monitored at 481, 578, 591, 611 and 627 nm, respectively.
(d) Excitation spectrum of Tridoped YBO₃@578
- Emission spectrum of Tridoped YBO₃ (Tb5% Dy2% Eu 4%)
- Emission spectrum of Undoped YBO₃

![Graph showing excitation and emission spectra](image)
**Fig. S3 (a)** Overlap of the emission spectra of undoped YBO$_3$ and tri-doped YBO$_3$:Dy$^{3+}$ 2%, Eu$^{3+}$ 4% and Tb$^{3+}$ 5% under the excitation at 365 nm. **(b), (c), (d), (e), (f) and (g)** Overlap of the emission spectrum of undoped YBO$_3$ and the emission and excitation spectra of tri-doped YBO$_3$:Dy$^{3+}$ 2%, Eu$^{3+}$ 4% and Tb$^{3+}$ 5% monitored at 481, 541, 578, 591, 611 and 627 nm, respectively.