Supporting Information

## Stable down-conversion white light-emitting devices based on highly luminescent copper halides synthesized at room temperature

Lin-Tao Wang, Zhuang-Zhuang Ma, Fei Zhang, Meng Wang, Xu Chen,\* Di Wu, Yong-Tao Tian, Xin-Jian Li and Zhi-Feng Shi\*

Key Laboratory of Materials Physics of Ministry of Education, School of Physics and Microelectronics, Zhengzhou University, Daxue Road 75, Zhengzhou 450052, China

<sup>\*</sup>Correspondence and requests for materials should be addressed to Z.S. (email: shizf@zzu.edu.cn) or to X.C. (email: xchen@zzu.edu.cn).



Figure S1. EDS spectrum of the obtained  $Cs_3Cu_2I_5$  microscale crystals.



Figure S2. EDS spectrum of the obtained CsCu<sub>2</sub>I<sub>3</sub> microscale crystals.



**Figure S3.** Normalized PL excitation spectra of (a)  $Cs_3Cu_2I_5$ , and (b)  $CsCu_2I_3$  microscale crystals measured at different emission wavelengths.



Figure S4. PL spectra of (a)  $Cs_3Cu_2I_5$  and (b)  $CsCu_2I_3$  captured at different temperature points.



**Figure S5.** PL spectra of (a)  $Cs_3Cu_2I_5$ , and (b)  $CsCu_2I_3$  microscale crystals captured at different time intervals.



Figure S6. Schematic diagram of WLED structure.



Figure S7. The color coordinates of the WLEDs captured at different running periods.