

Support information

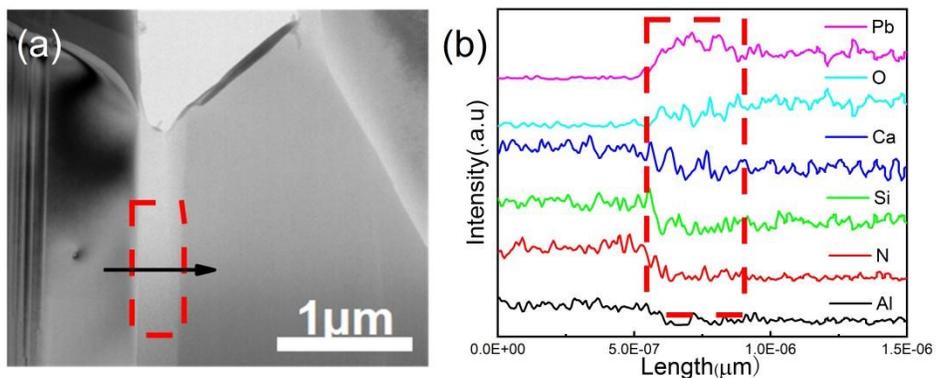


Fig.S1 Microstructure pattern (a) for the transition layer and the corresponding place in-line EDS (b). In **Fig.S1(a)**, the transition layer is recorded and a small defect is detected in the CASN:Eu particle. In **Fig.S1(b)**, the Pb and O element ascends in the transition layer, while the Ca, Si, Al, and N decrease.

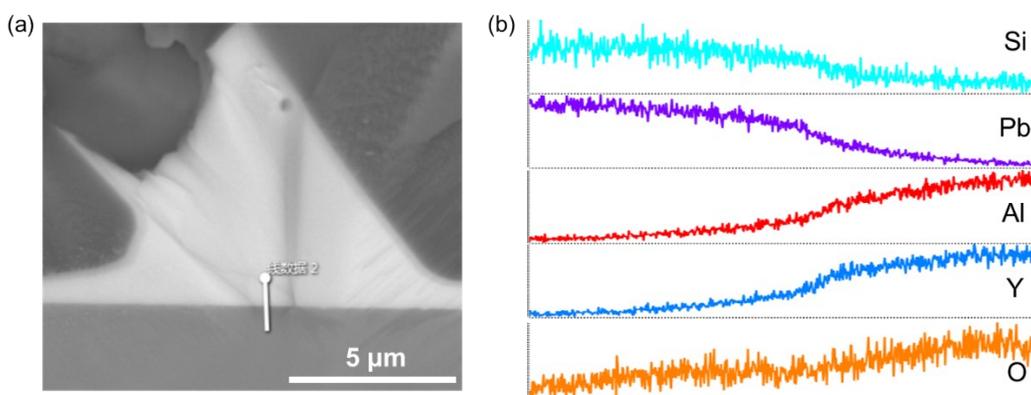


Fig.S2 Microstructure pattern (a) of the glass and YAG:Ce-CPs and the corresponding place in-line EDS (b). In **Fig.S2(a)**, the interface between glass and YAG:Ce-CPs is very clear, and there is no transition layer. In **Fig.S2(b)**, the Pb and Si elements exist in the glass and disappear in YAG:Ce-CPs, while Y exists in YAG:Ce-CPs and disappears in the glass.

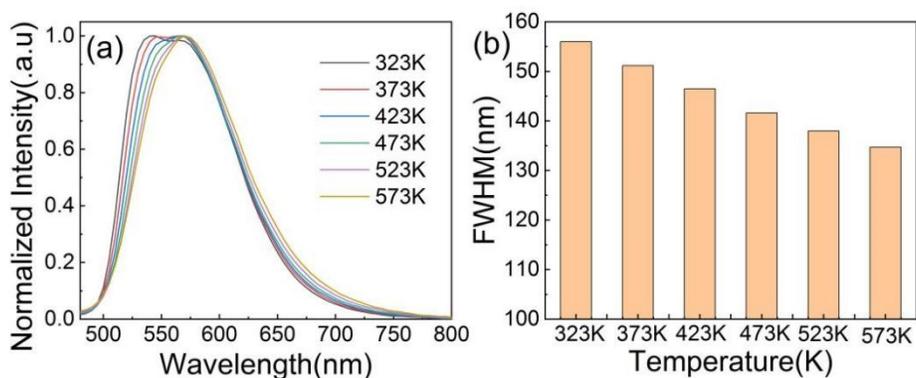


Fig.S3 (a) Normalized PL spectra of YAG-CPs taken from 323 to 573 K and (b) FWHM of 1R taken from 323 to 573 K. In **Fig.S3(a)**, a red-shift can be found for YAG-CPs as the temperature raises from 323 to 523 K. Because of the peak-shift of phosphor, the FWHM of composite specimen decreases from 156 to 134 nm when the temperature ascends in **Fig.S3(b)**.

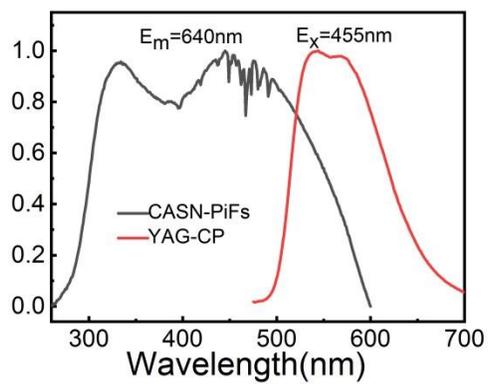


Fig.S4 Normalized PLE spectrum of CASN-PiGFs and PL spectrum of YAG-CPs.

In **Fig.S4** a wide PLE spectrum (270-600 nm) is detected for CASN-PiGFs, and there is a large overlap between the PL spectrum of YAG-CPs and the PLE spectrum of CASN-PiGFs.