Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

Supporting Information

Color-tunable light-emitting fibers for pattern displaying textiles

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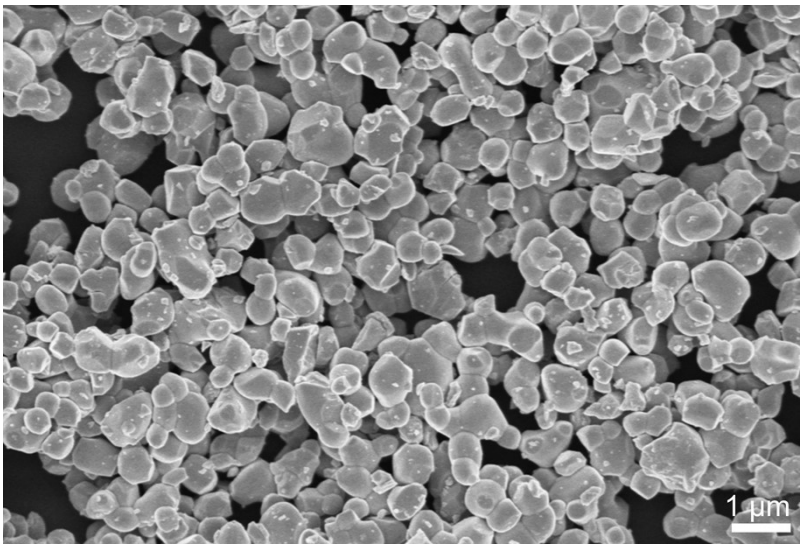

Fig. S1 SEM image of $BaTiO_3$ particles.

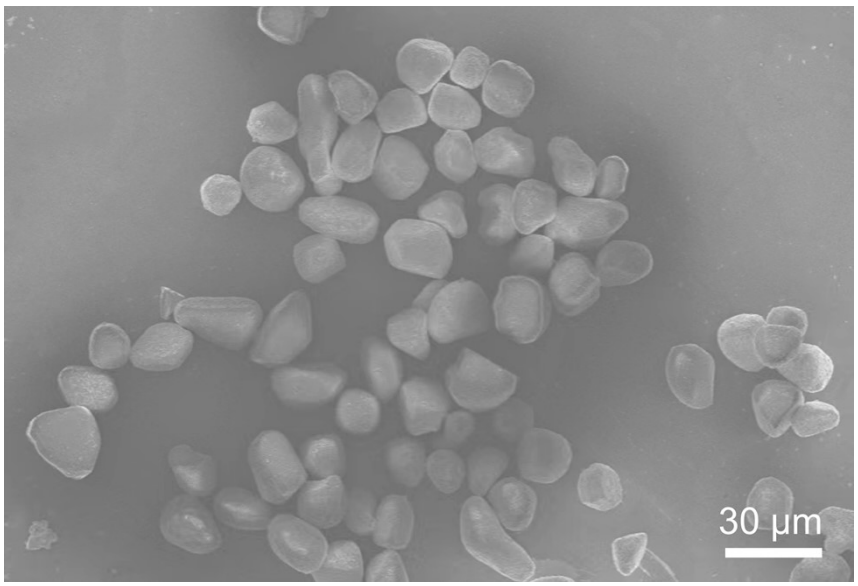

Fig. S2 SEM image of the ZnS:Cu phosphors.

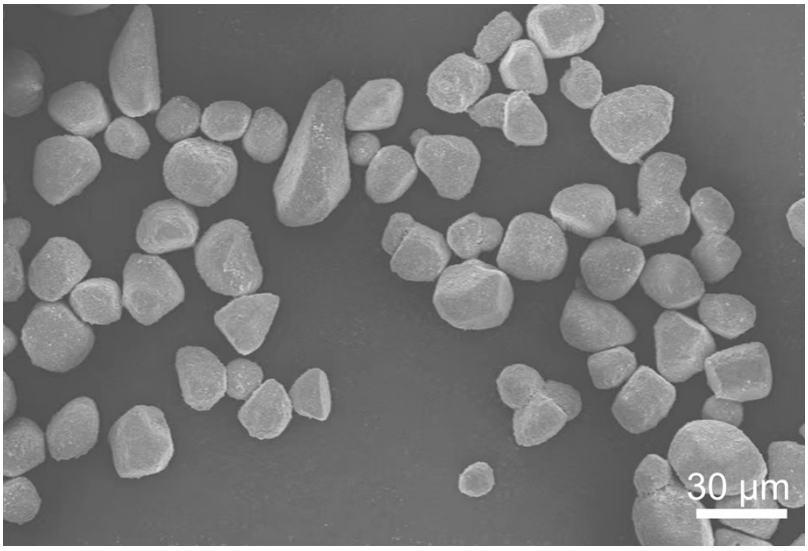

Fig. S3 SEM image of the ZnS:Mn phosphors.

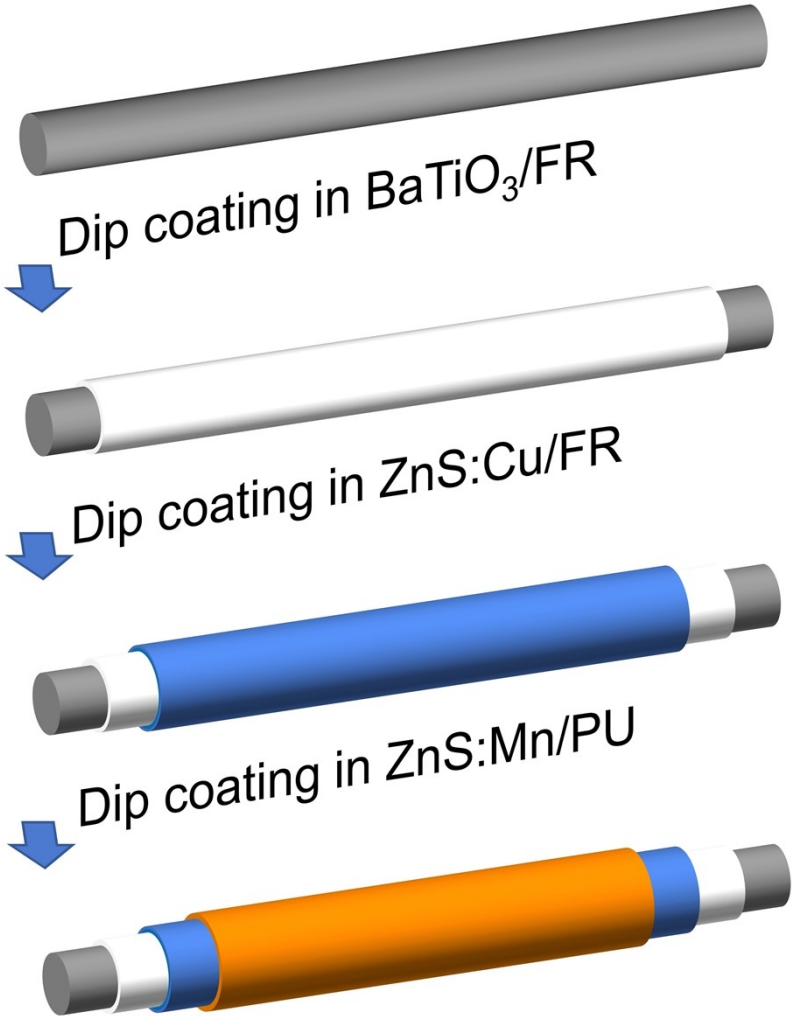

Fig. S4 Schematic illustration of the fabrication process of CLFs.

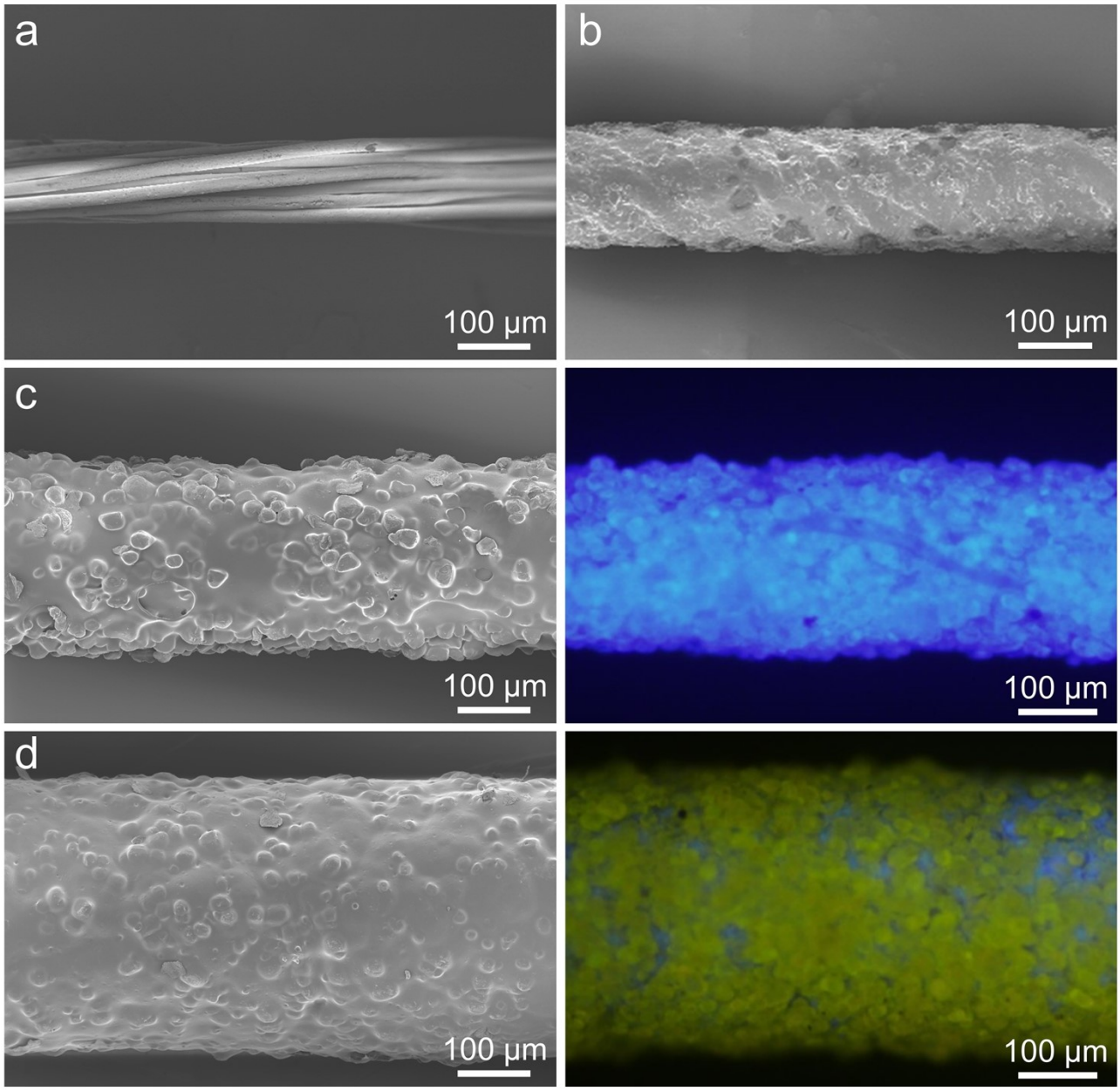

Fig. S5 a) The SEM image of the inner conductive electrode. b) The SEM image of the dielectric layer. c) The SEM image and fluorescence image of the blue-light-emitting layer. d) The SEM image and fluorescence image of the orange-light-emitting layer.

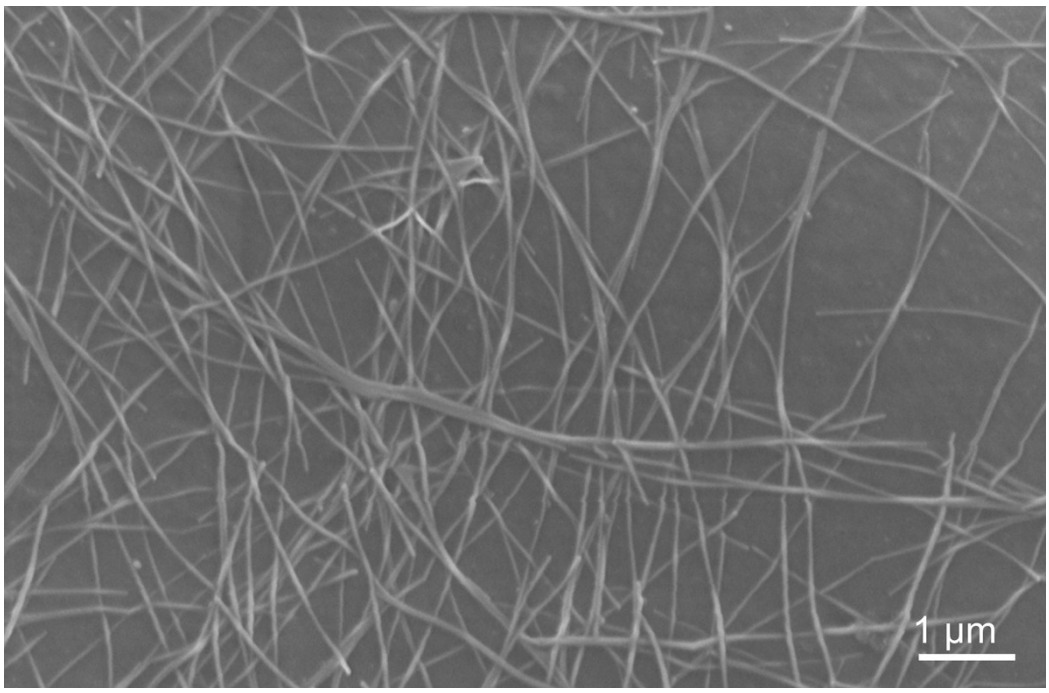

Fig. S6 SEM image of the Ag nanowires in the transparent conductive layer.

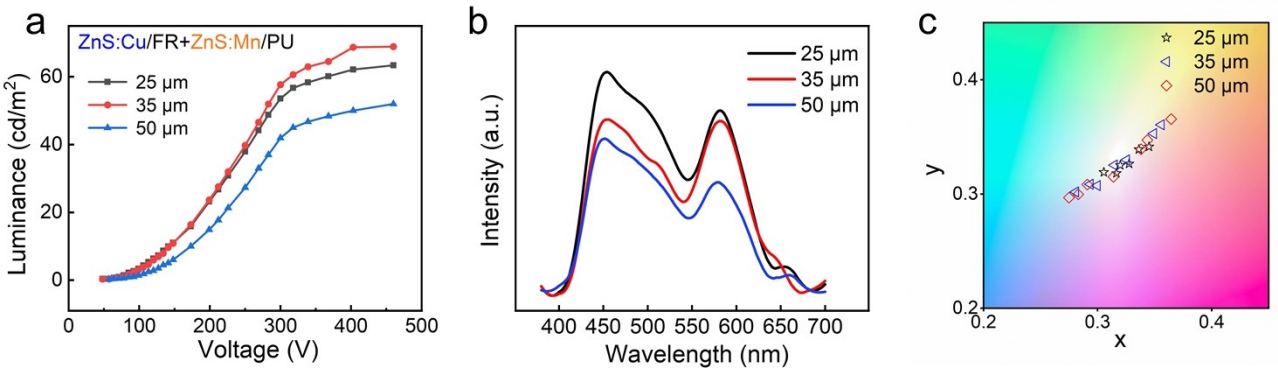

Fig. S7 Luminance (a), EL spectra (b) and CIE coordinates (c) of CLFs with different thickness in the light-emitting layer.

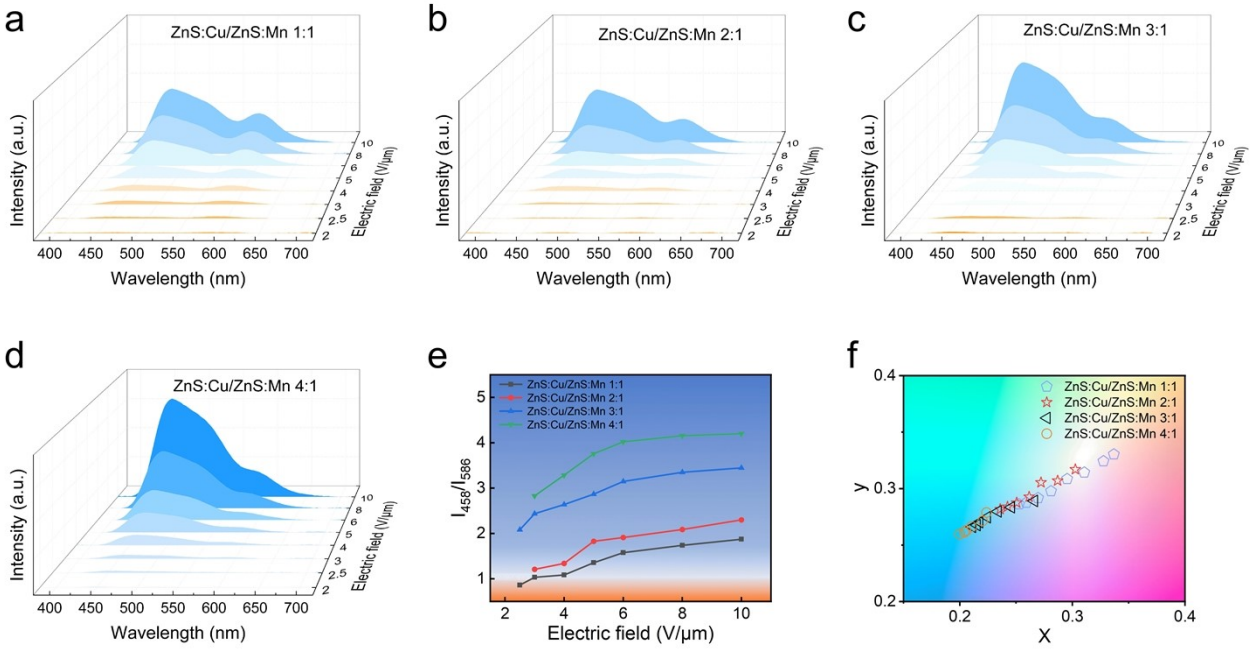

Fig. S8 a-d) EL spectra of CLFs with ZnS:Cu phosphors contents of 50% (a), 67% (b), 75% (c) and 80% (d). The frequency of the applied voltage was 2 kHz. e, f) I_{458}/I_{586} value and corresponding CIE coordinates of the CLFs with different contents of ZnS:Cu phosphors.

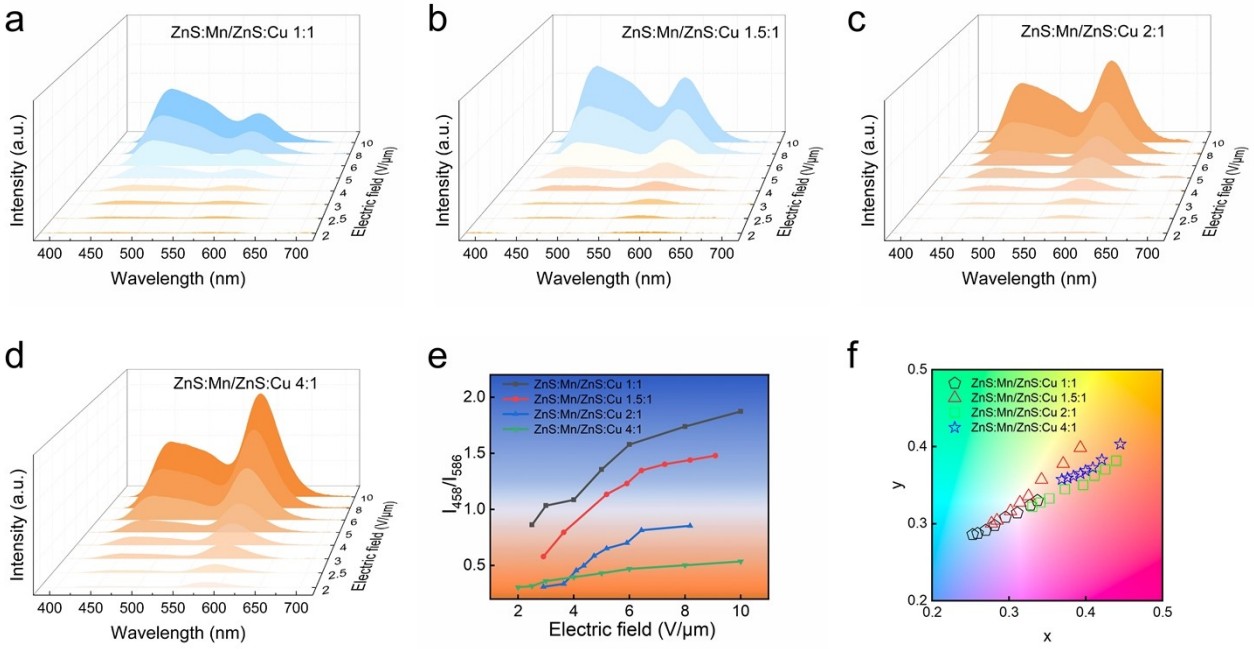

Fig. S9 a-d) EL spectra of CLFs with ZnS:Mn phosphors contents of 50% (a), 67% (b), 75% (c) and 80% (d). The frequency of the applied voltage was 2 kHz. e, f) I_{458}/I_{586} value and corresponding CIE coordinates of the CLFs with different contents of ZnS:Mn phosphors.

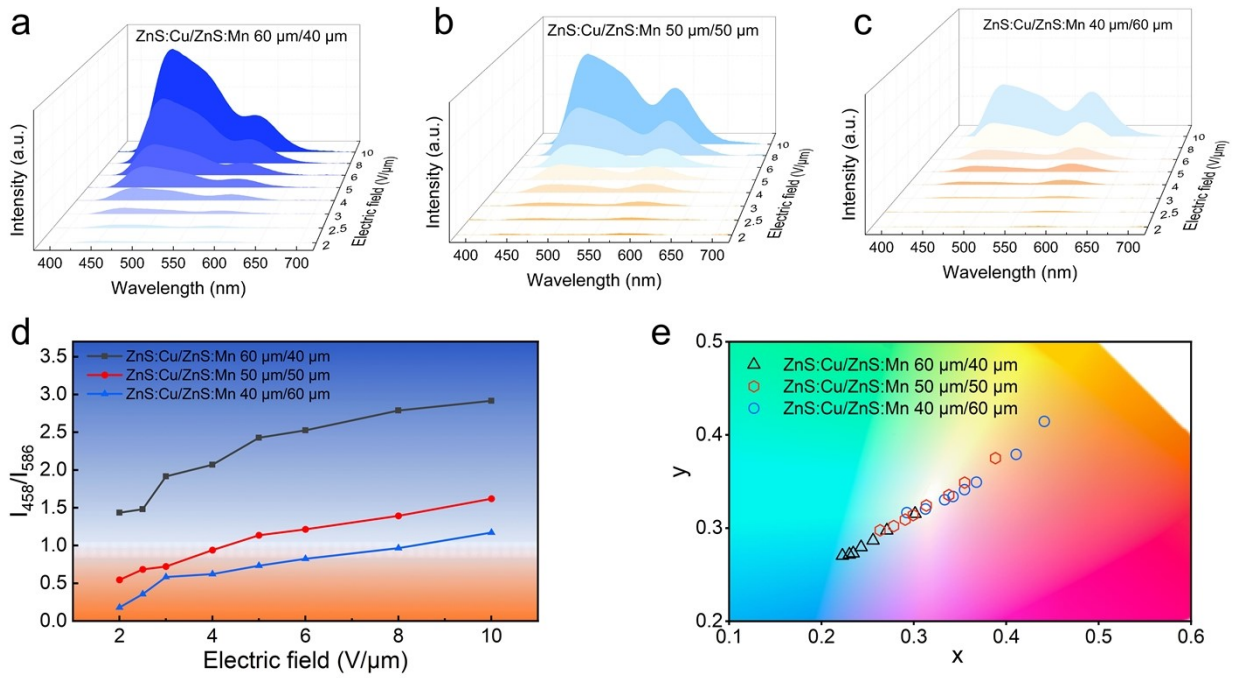

Fig. S10 a-d) EL spectra of CLFs with different relative thickness of 60 μm/40 μm (a), 50 μm /50 μm (b) and 40 μm /60 μm (c) The frequency of the applied voltage was 2 kHz. e) I_{458}/I_{586} value and corresponding CIE coordinates of the CLFs with different relative thickness.

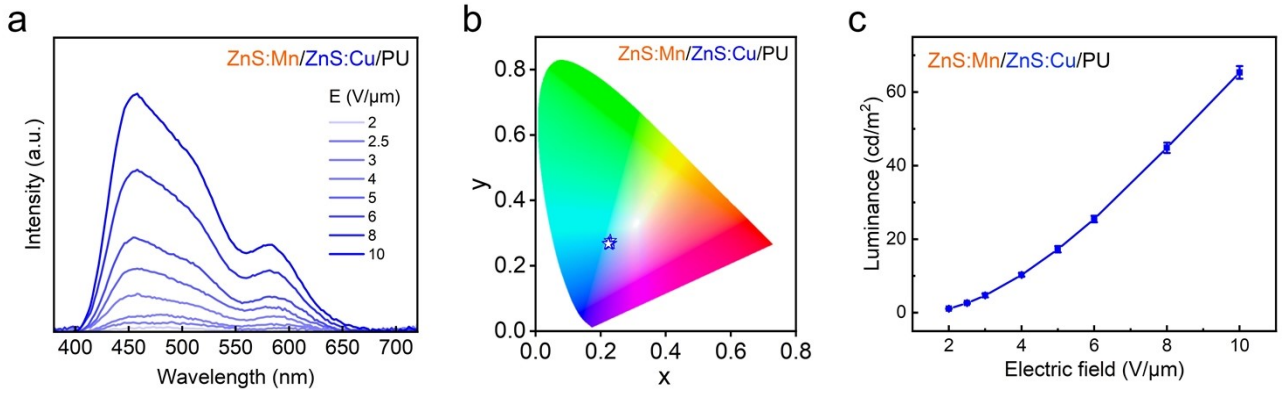

Fig. S11 EL spectra (a), CIE coordinates (b) and luminance (c) of CLFs with single-light-emitting layer (made of ZnS:Mn/ZnS:Cu/PU) at varied electric field intensity.

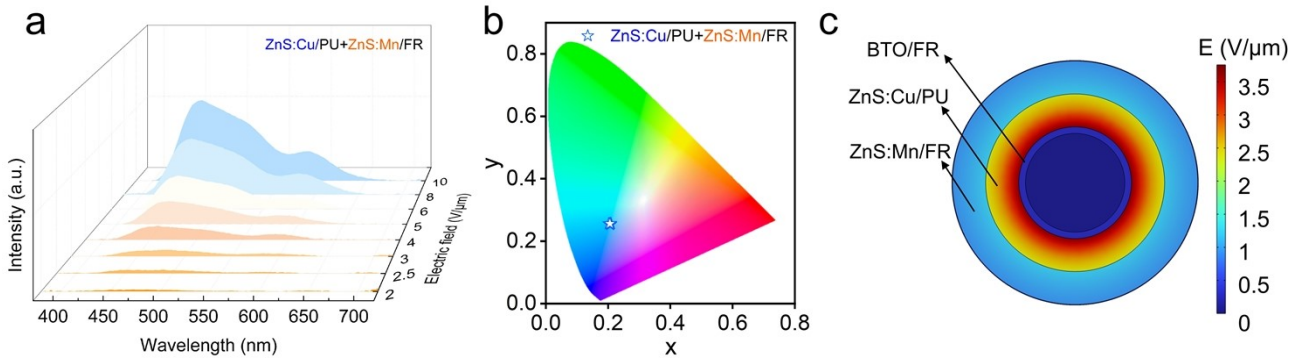

Fig. S12 a, b) EL spectra (a) and CIE coordinates (b) of CLFs with double-light-emitting layer (ZnS:Cu/PU and ZnS:Mn/FR) at varied electric field intensity. c) Simulation of electric field distribution of the CLFs with double-light-emitting layer.

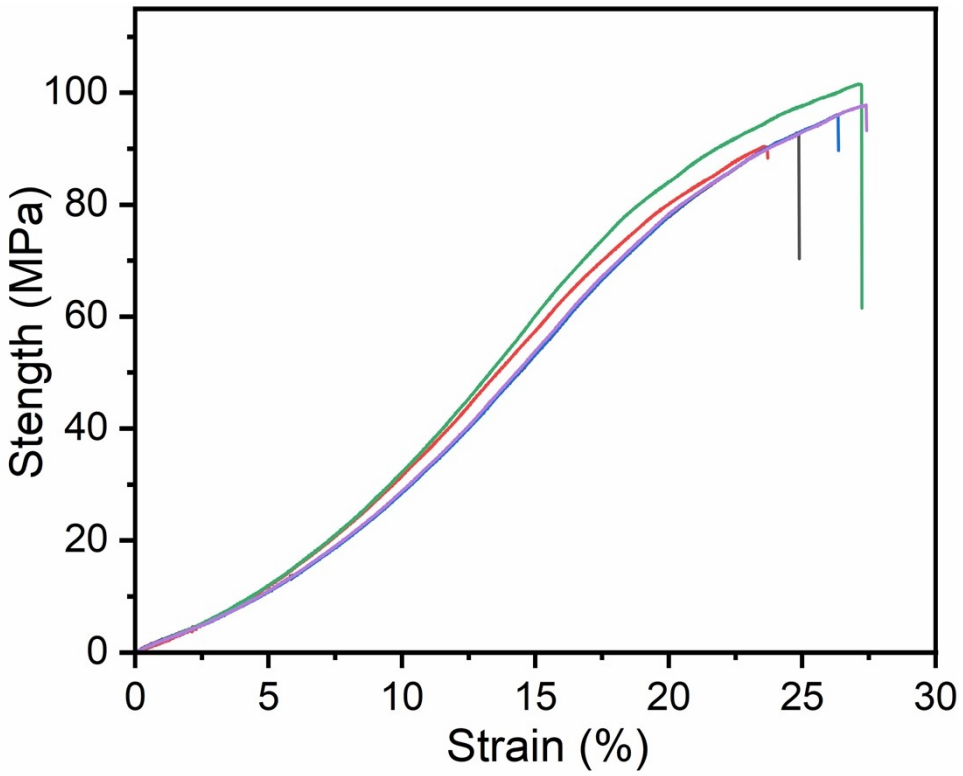

Fig. S13 Stress-strain curves of CLFs.

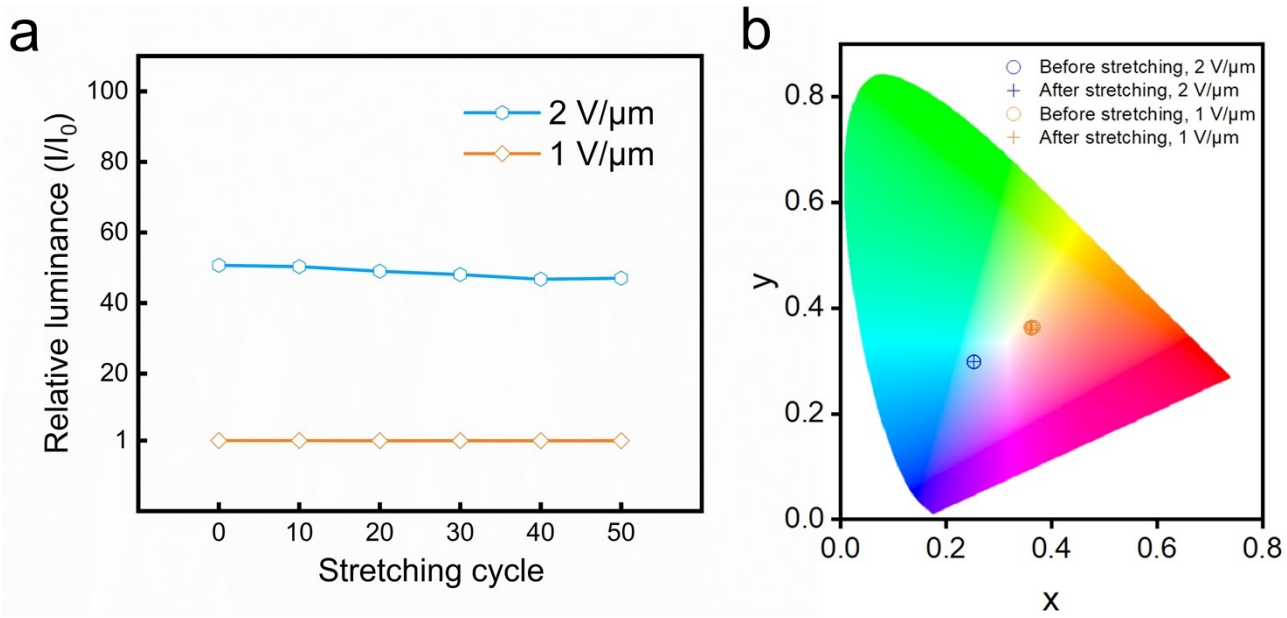

Fig. S14 a, b) Relative luminance (a), CIE coordinates (b) after cyclic stretching deformation with a tensile strain of 5%.

Fig. S15 Photograph of CLF being compressed by two 500 g weights.

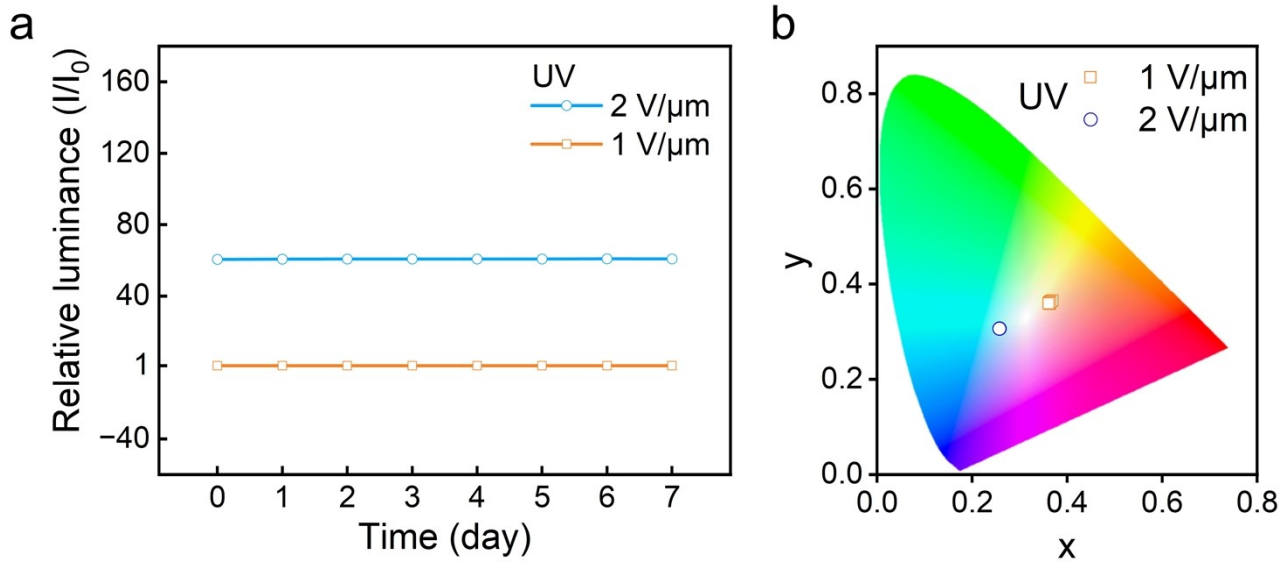

Fig. S16 a, b) Relative luminance (a) and CIE coordinates (b) of the CLFs under UV light for 7 days. The applied electric fields were 2 V/μm and 1 V/μm, and the frequency was 2 kHz.

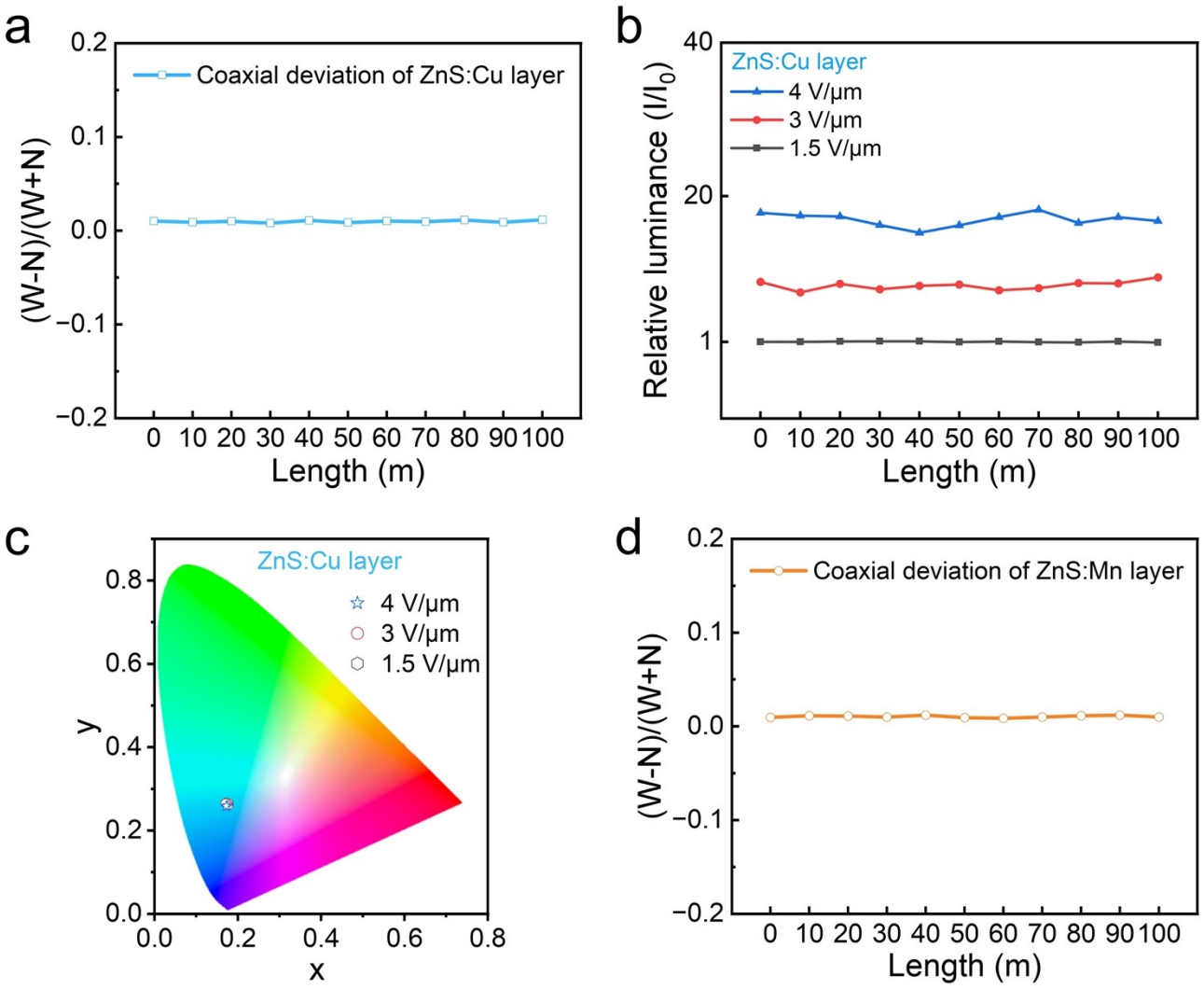

Fig. S17 The coaxial deviation of ZnS:Cu layer (a), relative luminance (b) and corresponding CIE coordinates (c) of the CLFs with a length of 100 m. d) The coaxial deviation of ZnS:Mn layer along the length of CLFs.