

## Supporting Information

### Dual-Band White Light Emission and Temperature-Dependent Luminescence of Sn<sup>2+</sup> in the Metastable Structure of Cs<sub>2</sub>CaCl<sub>4</sub>(H<sub>2</sub>O)<sub>2</sub>

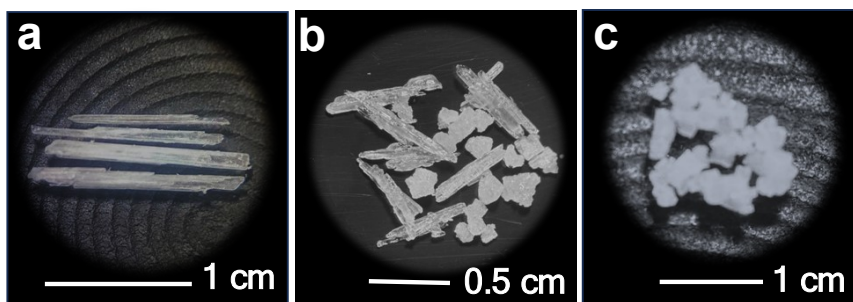
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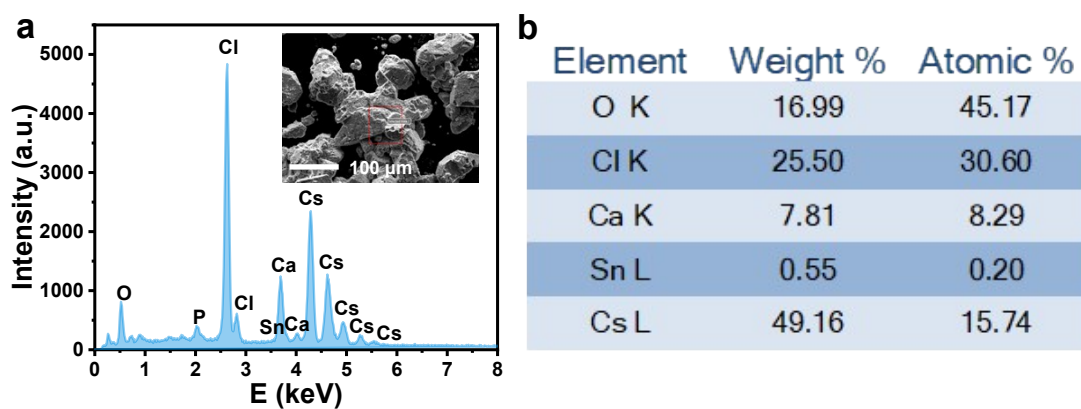
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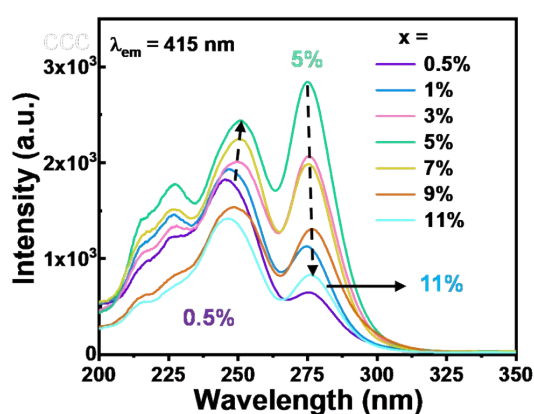


**Fig. S1** Optical images of  $\text{CCCH}:\text{Sn}^{2+}$  crystals synthesized from 600 (a), 300 (b), and 100  $\mu\text{L}$  (c)

$\text{H}_3\text{PO}_2$  under natural lights..



**Fig. S2** (a) EDS spectrum (inset: SEM) and (b) element proportion of  $R\text{-CCCH}:\text{5\%Sn}^{2+}$ .



**Fig. S3** Excitation spectra of  $R\text{-CCCH}:\text{xSn}^{2+}$  with  $\text{Sn}^{2+}$  ions concentration.

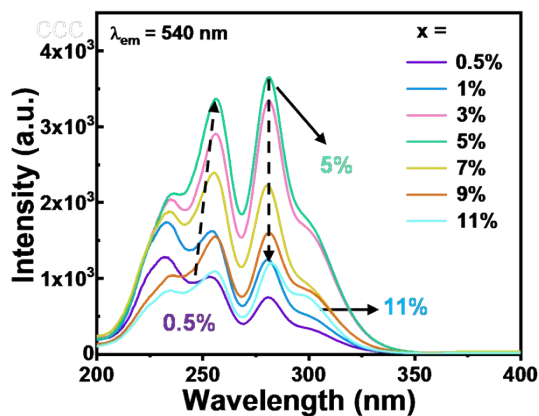


Fig. S4 Excitation spectra of  $R\text{-CCCH}:x\text{Sn}^{2+}$  varied with  $\text{Sn}^{2+}$  ions concentration.

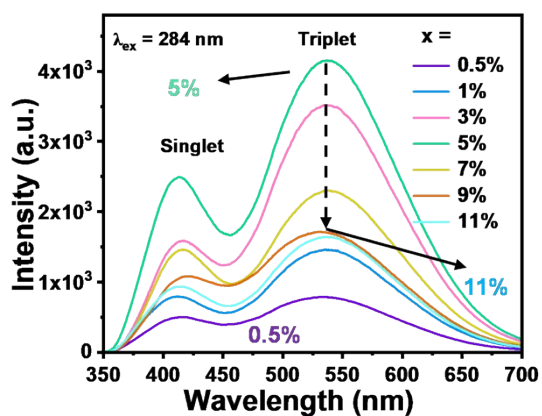


Fig. S5 PL spectra of  $R\text{-CCCH}:x\text{Sn}^{2+}$  with different  $\text{Sn}^{2+}$  concentrations.

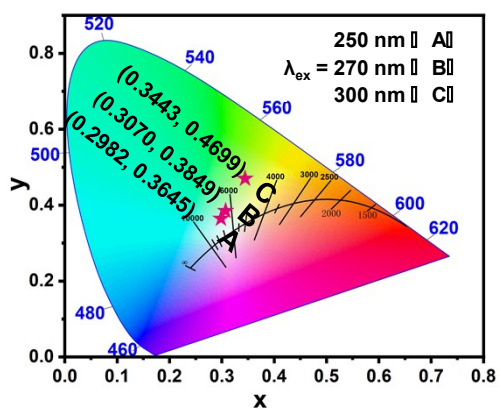


Fig. S6 CIE coordinates of  $R\text{-CCCH}:5\%\text{Sn}^{2+}$  crystals excited by different wavelengths.

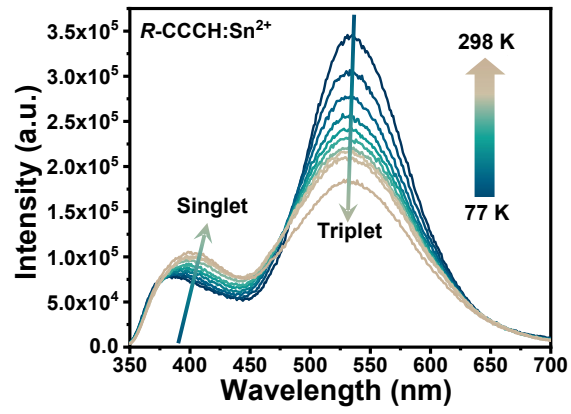


Fig. S7 Emission spectra of R-CCCH:Sn<sup>2+</sup> measured at 77 and 298 K under excitation of 284 nm.

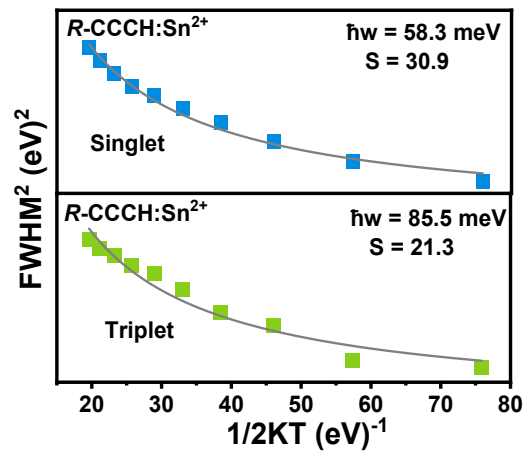


Fig. S8 FWHM of R-CCCH:5%Sn<sup>2+</sup> crystals varied from 77 to 298 K.