

**High Performance NIR-I to NIR-II emission of Cr³⁺-doped Cs₂NaLuCl₆
phosphor with IQE and EQE of up to 92.9% and 60.75%**

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Table S1. Crystallographic parameters obtained from XRD Rietveld refinement of CNLC:xCr (x=0, 0.005, 0.008, 0.01, 0.012, and 0.017), respectively.

	CNLC	CNLC:0. 005Cr	CNLC:0.0 08Cr	CNLC:0.0 1Cr	CNLC:0.0 12Cr	CNLC:0.0 17Cr
Crystal structure	Cubic	Cubic	Cubic	Cubic	Cubic	Cubic
Space group	<i>Fm-3m</i>	<i>Fm-3m</i>	<i>Fm-3m</i>	<i>Fm-3m</i>	<i>Fm-3m</i>	<i>Fm-3m</i>
a, Å	10.8169	10.8136	10.8114	10.809	10.8042	10.8017
V, Å ³	1265.635	1264.477	1263.705	1262.864	1261.182	1260.307
R _p %	5.87	7.62	6.01	7.45	7.31	8.97
R _{wp} %	5.22	5.92	6.80	8.61	8.41	7.66
χ ² %	2.64	2.99	2.24	2.42	2.77	2.91

Figure S1. Rietveld refinement profiles of (a) CNLC:0.005Cr, (b) CNLC:0.008Cr, (c) CNLC:0.01Cr, (d) CNLC:0.012Cr, and (f) CNLC:0.017Cr, respectively.

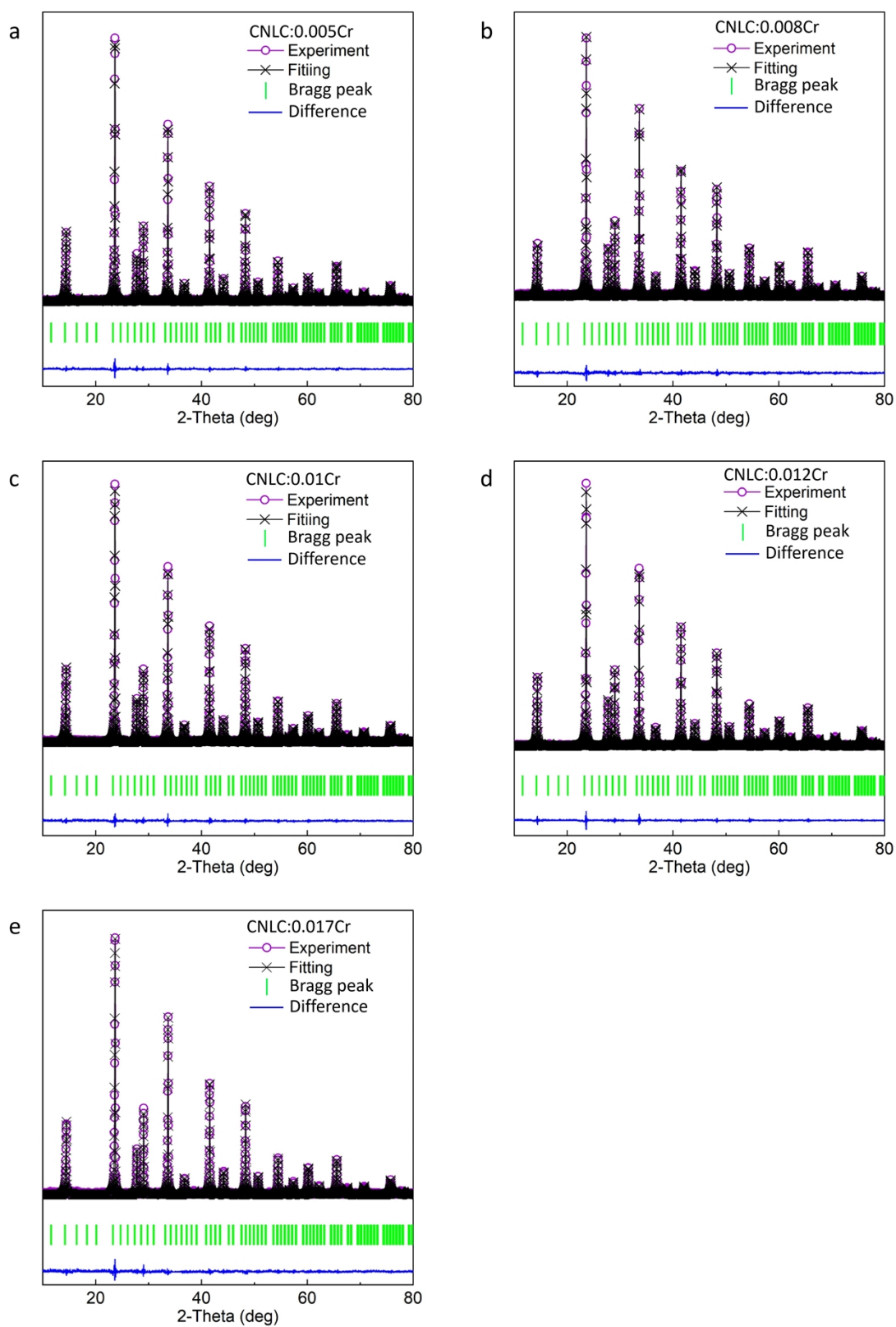


Figure S2. The measured EDS spectrum of CNLC:0.008Cr phosphor.

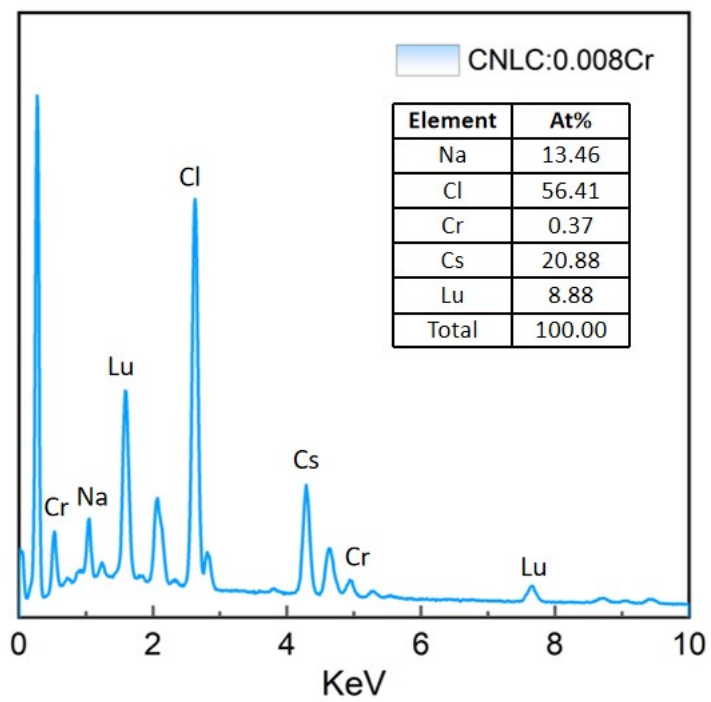


Figure S3. The plot of absorption coefficient against photon energy for CNLC host.

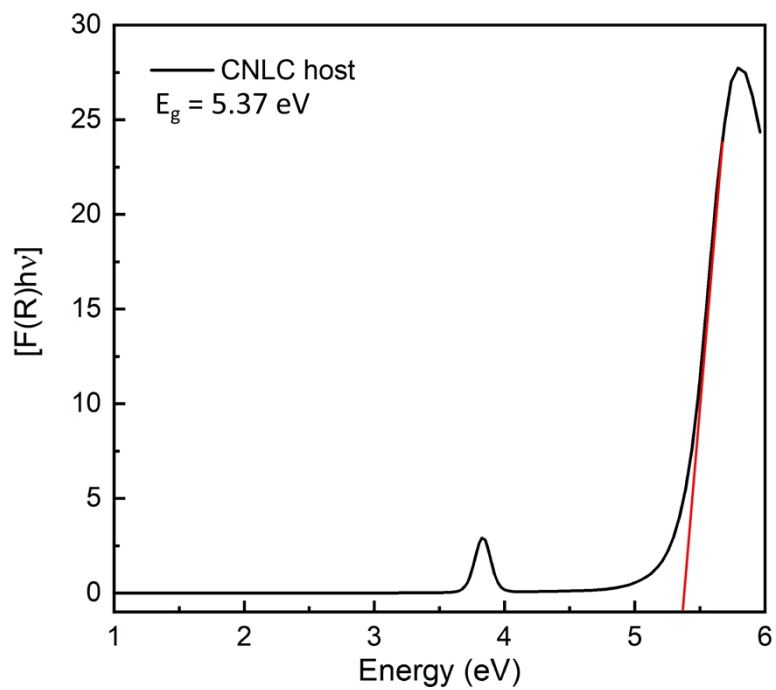


Figure S4. The Arrhenius plot of $\ln(I_0/I_T-1)$ versus $1/K_B T$ of CNLC:0.008Cr phosphor.

