

Supporting Information

High-contrast photochromic Eu-doped $\text{K}_{0.5}\text{Na}_{0.5}\text{NbO}_3$ ceramics with prominent pellucidity

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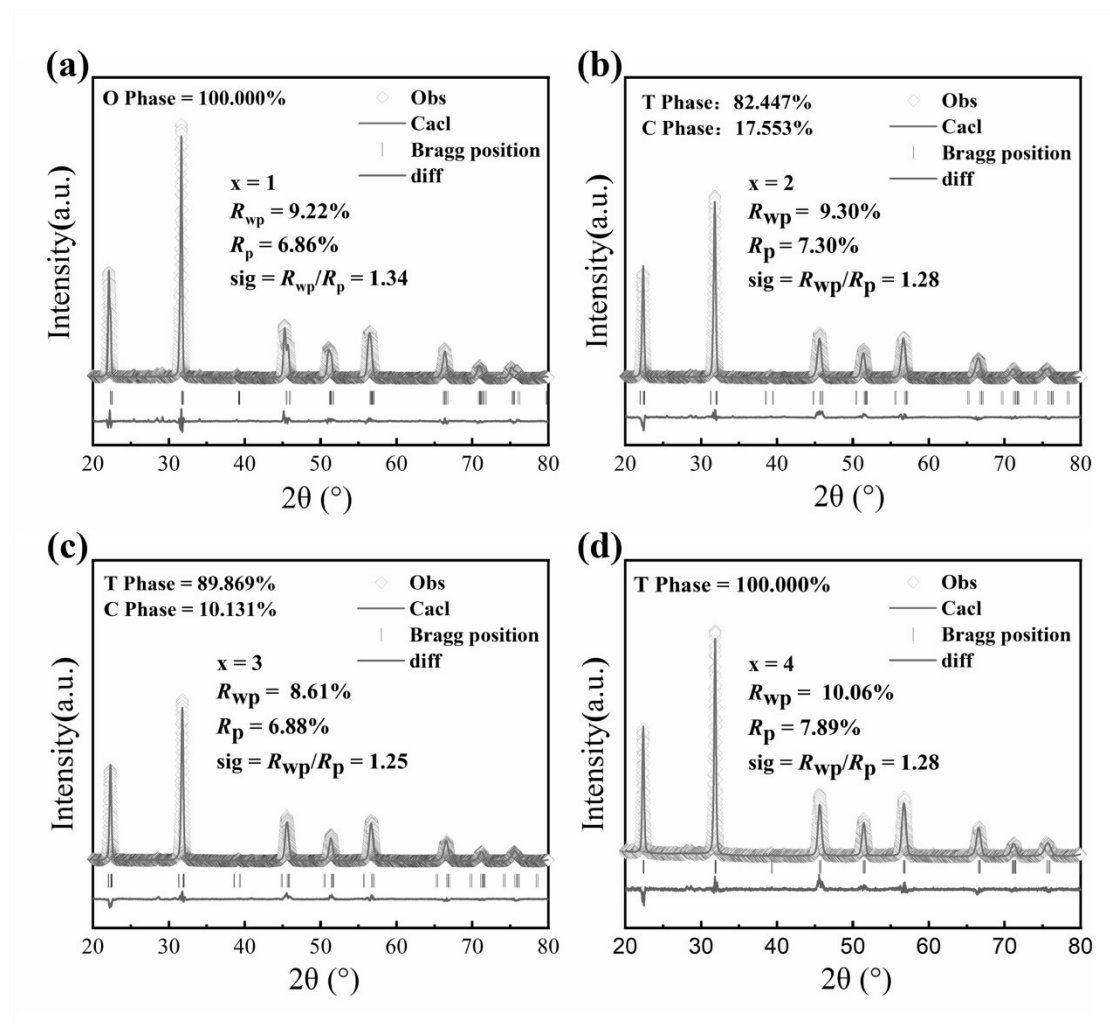


Fig. S1 Rietveld refinement of the xEu-KNN ceramics which performed by the GSAS program.

Table S1 Rietveld refinement parameters of the xEu-KNN ceramics.

Sample	R_{wp} (%)	Phase	Phase frac. (%)	a (Å)	b (Å)	c (Å)	c/a
x = 1	9.22%	Orthorhombic	100%	3.9514	5.6438	5.6352	1.4261
x = 2	9.31%	Tetragonal	82.45%	3.9471	3.9471	3.9715	1.0062
		Cubic	17.55%	4.0495	4.0495	4.0495	
x = 3	8.61%	Tetragonal	89.87%	3.9584	3.9584	3.9758	1.0044
		Cubic	10.131%	4.0425	4.0425	4.0425	
x = 4	10.06%	Tetragonal	100%	3.9674	3.9674	3.9783	1.0027

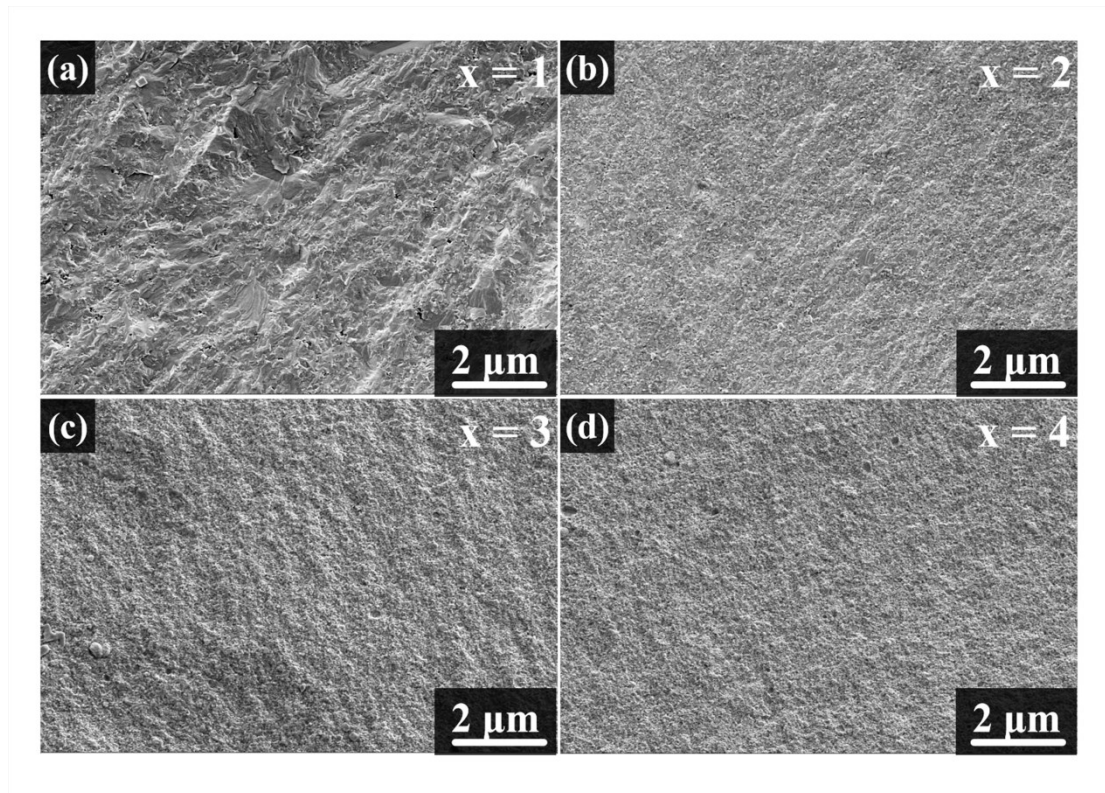


Fig. S2 SEM images on fractures of the xEu-KNN ceramics, (a) $x = 1$, (b) $x = 2$, (c) $x = 3$, (d) $x = 4$.

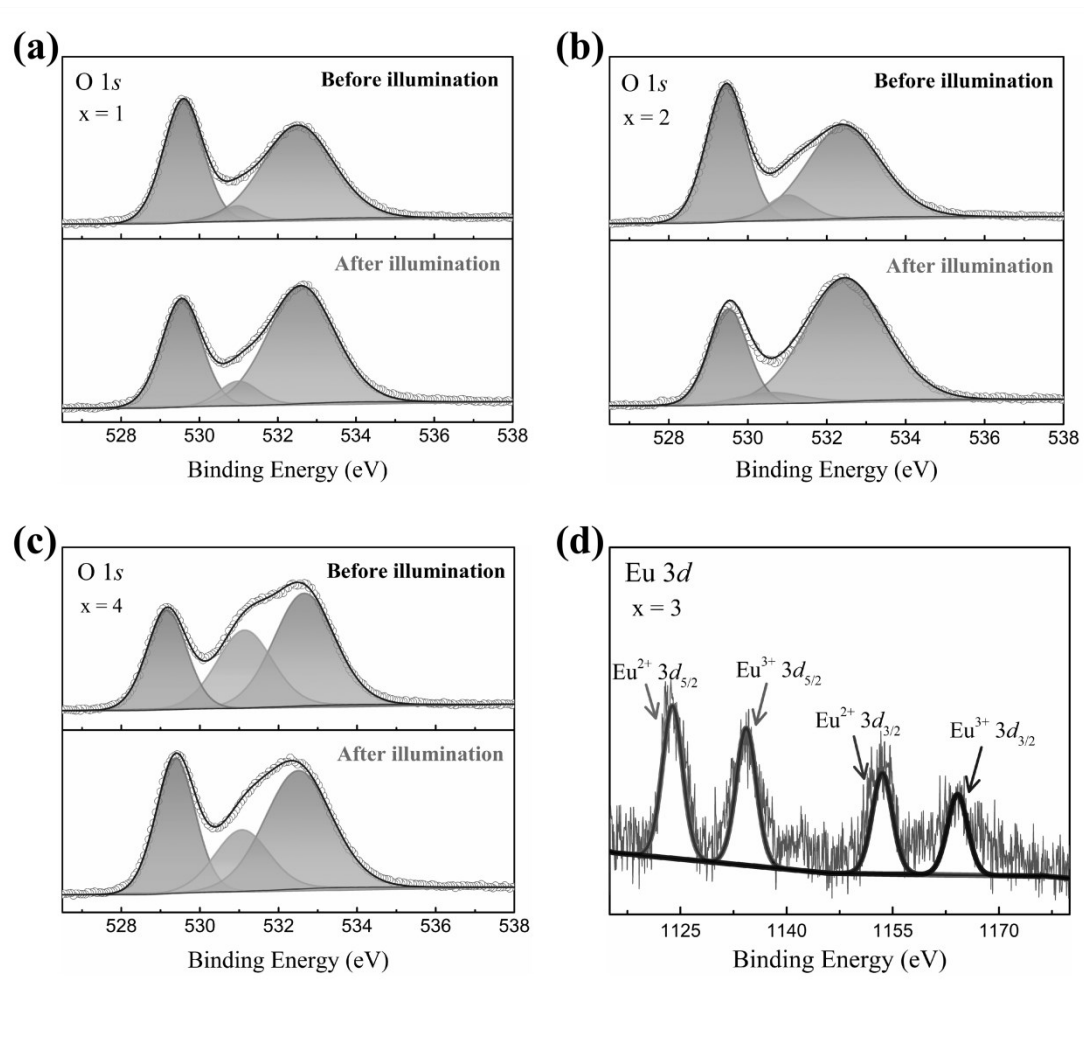


Fig. S3 O 1s XPS spectra of the xEu-KNN ceramics before and after illumination, (a) $x = 1$, (b) $x = 2$, and (c) $x = 4$. (d) Eu 3d XPS spectra of 3Eu-KNN.