

Supporting Information

Ultra-temperature and High Thermal Stability Thermosensitive High-Entropy Ceramics up to 1873 K

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Table S1. Chemical formula, configuration entropy (ΔS_{config}) and size disorder (δ) of Yb₃NbO₇-based ceramics.

Chemical Formula	Configurational Entropy (ΔS_{config})	Size disorder (δ)
Yb ₃ NbO ₇	/	/
Yb ₃ TaO ₇	/	/
Yb ₃ (VNbTa) _{1/3} O ₇	$\Delta S_{\text{config}} = 1.10 \text{ R}$	$\delta = 7.75 \%$
(HoErTmYbLu) _{3/5} NbO ₇	$\Delta S_{\text{config}} = 1.53 \text{ R}$	$\delta = 1.38 \%$

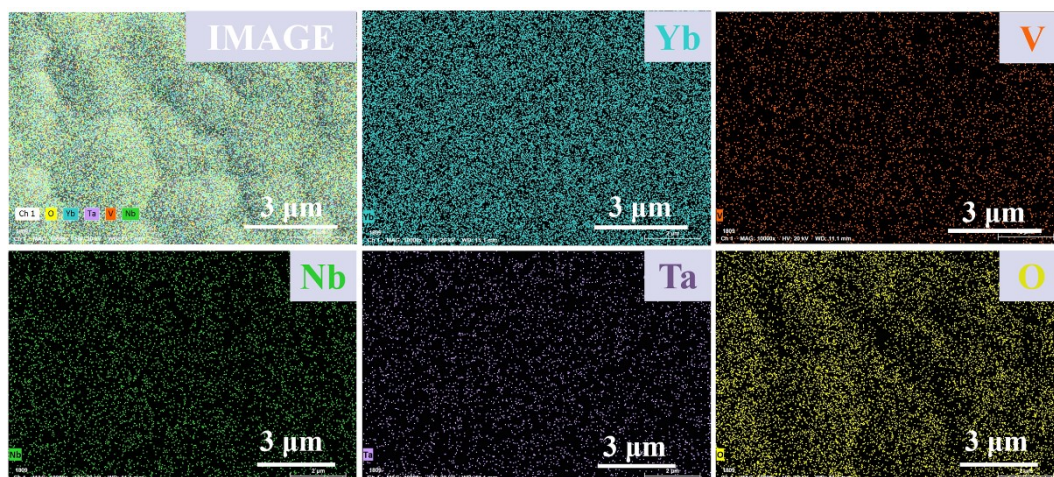


Figure S1. Elemental distribution mapping of $\text{Yb}_3(\text{V}_{1/3}\text{Nb}_{1/3}\text{Ta}_{1/3})\text{O}_7$.

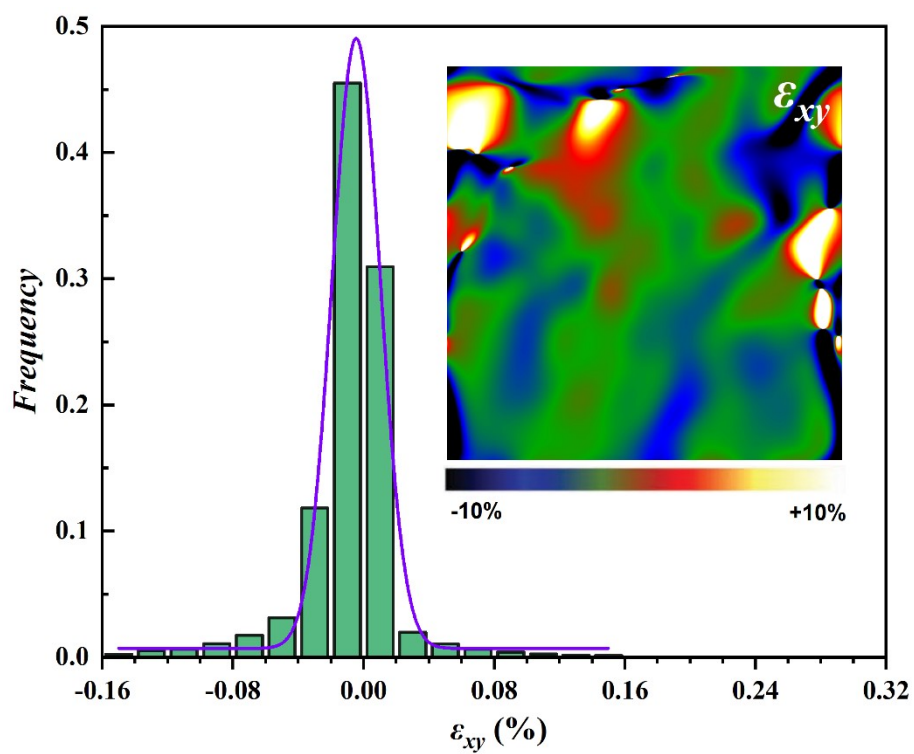


Figure S2. The shear strains along the xy directions based on geometric phase analysis (GPA) in $\text{Yb}_3(\text{V}_{1/3}\text{Nb}_{1/3}\text{Ta}_{1/3})\text{O}_7$. The color scale in Figure represents the change in strain intensity from -10% (compression) to 10% (tension).

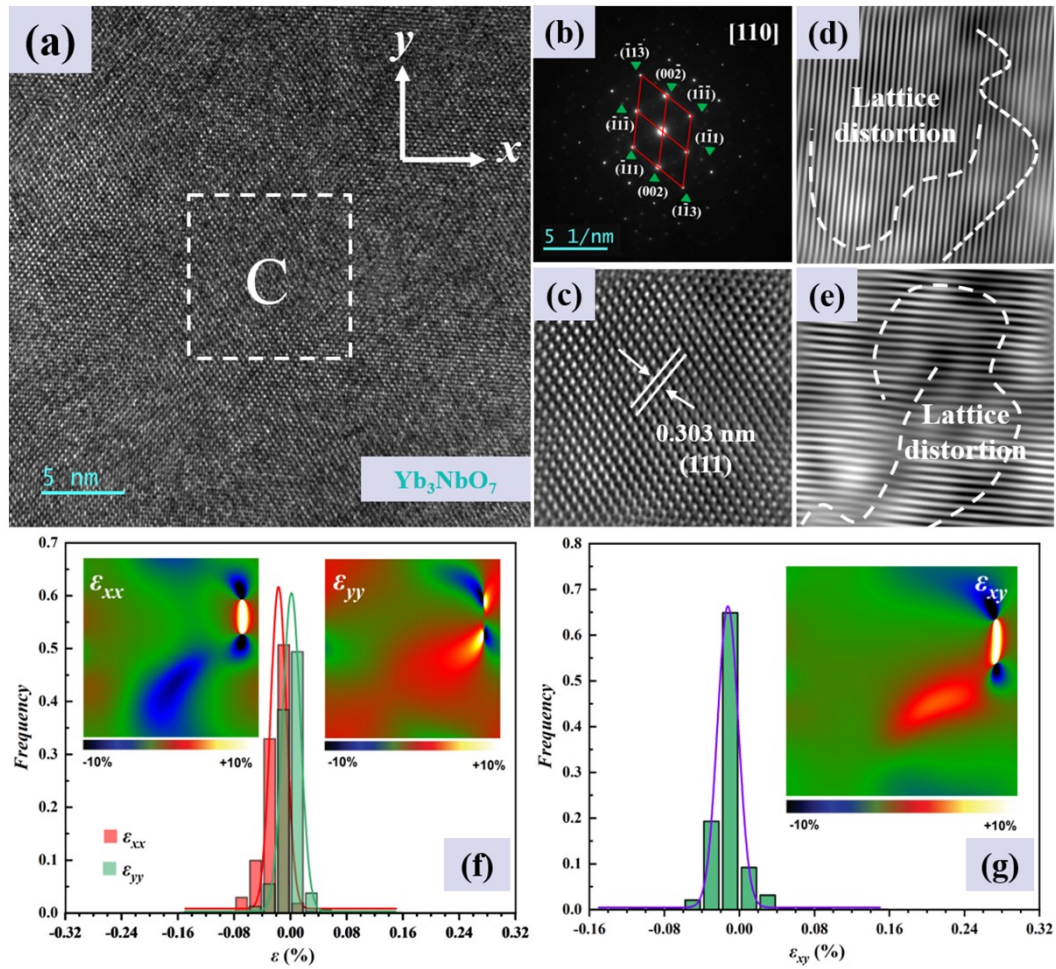


Figure S3. Microstructural of Yb_3NbO_7 ceramics. (a) High-resolution transmission electron microscopy (HRTEM). (b) Selected area electron diffraction (SAED). (c-e) The inverse fast Fourier transform (IFFT) analysis of region C. (f) The normal strains along the xx and yy directions based on geometric phase analysis (GPA). (g) The shear strains along the xy directions based on GPA.

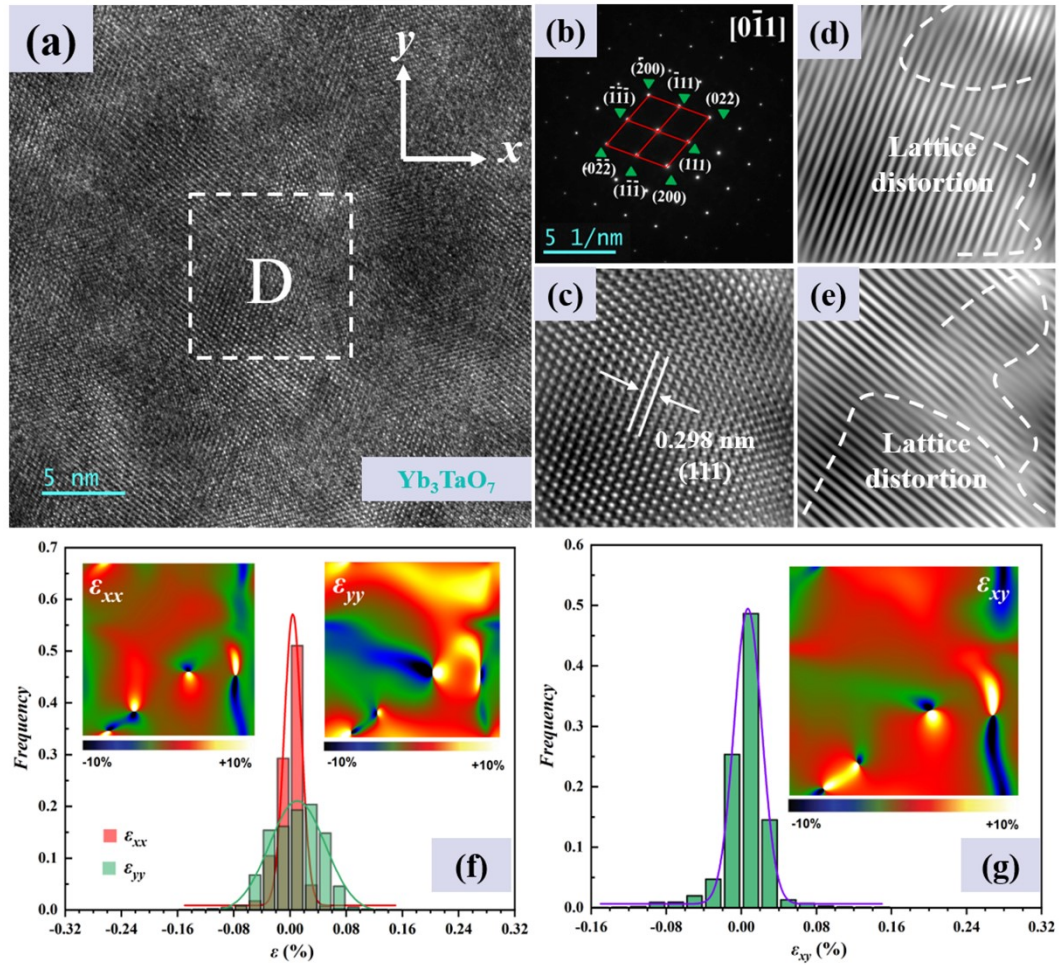


Figure S4. Microstructural of Yb_3TaO_7 ceramics. (a) High-resolution transmission electron microscopy (HRTEM). (b) SAED. (c-e) The IFFT analysis of region D. (f) The normal strains along the xx and yy directions and (g) the shear strains along the xy directions based on GPA.

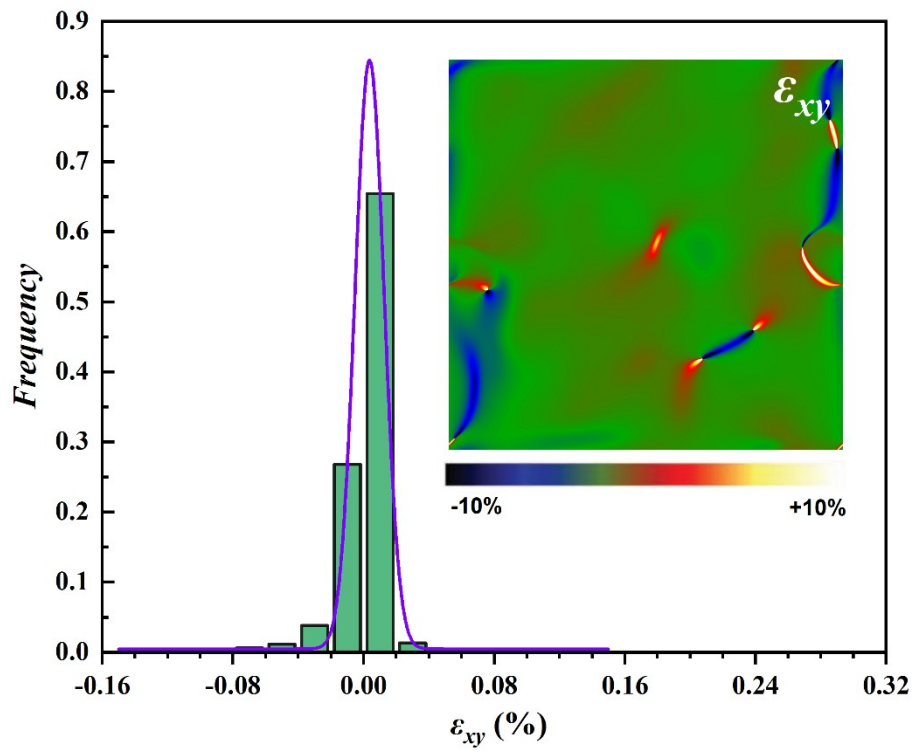


Figure S5. The shear strains along the xy directions based on GPA in $(\text{Ho}_{0.2}\text{Er}_{0.2}\text{Tm}_{0.2}\text{Yb}_{0.2}\text{Lu}_{0.2})_3\text{NbO}_7$.