Supplementary Materials

Tuning the Coefficient of Thermal Expansion of Transparent Lithium Aluminosilicate Glass-Ceramics by a Two-Stage Heat Treatment

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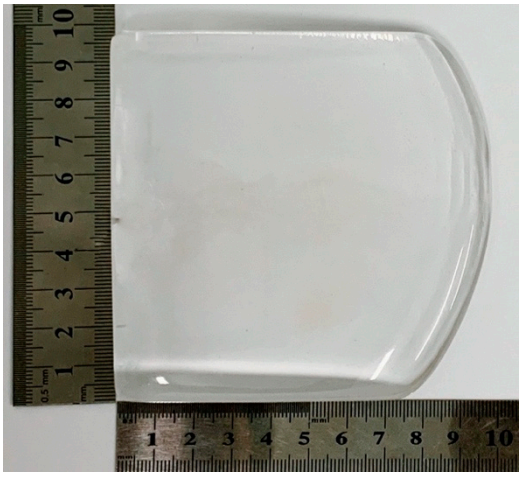

Figure S1. Photo of the synthesized LAS glass block.

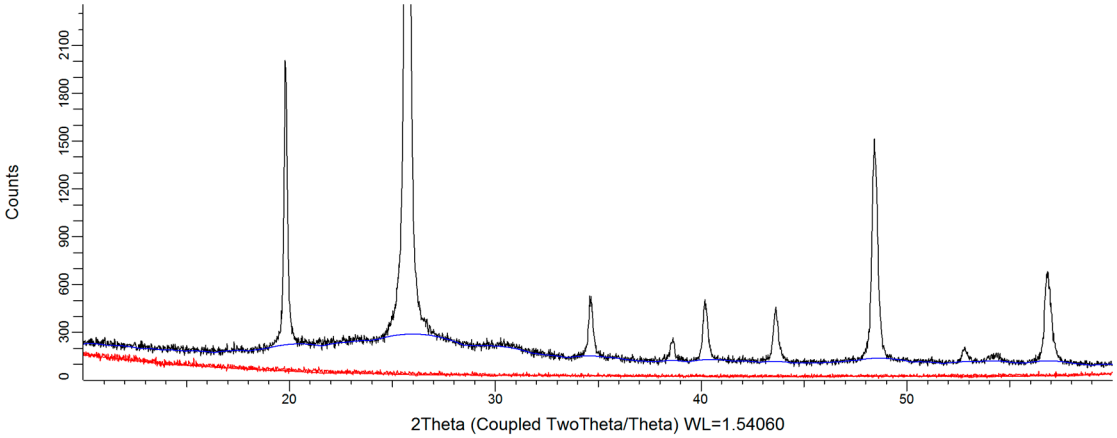

Figure S2. XRD patterns of one of the glass-ceramic samples and an empty silicon-made low-background specimen holder used to estimate the instrumental background profile.

The crystallized fraction was evaluated as $100 \cdot (A_p/A_x)$, where A_x and A_p are, respectively, the area of the whole XRD pattern (without background) and the area of the peaks considered as the area outside of the broad amorphous XRD pattern. The area of the whole XRD pattern (without background) was obtained by subtracting the area under the red curve from the area under the black pattern. The area of the black pattern above the blue line refers to the area of the peaks.

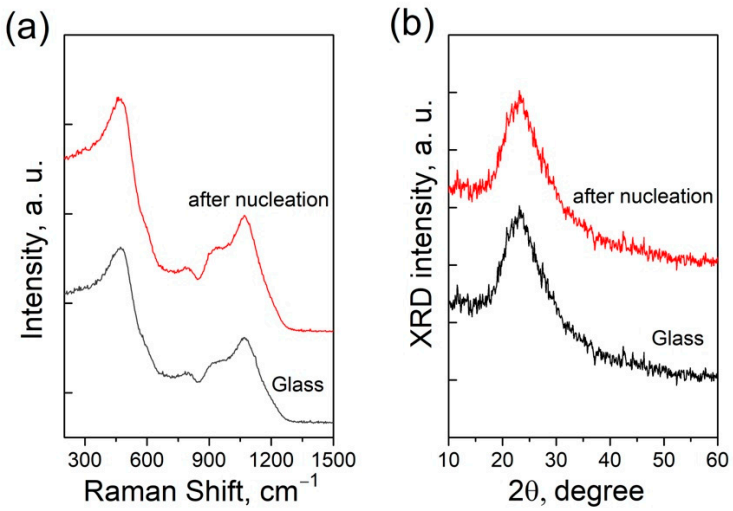

Figure S3. (a) Raman spectra and (b) XRD patterns of initial glass and glass obtained after the nucleation pre-treatment at 670 °C for 2 h.

Table S1 Detailed ICP-OES instrumental settings

ICP-OES	Agilent 5800 VDV	
RE power (W)	1300 W	
Elements measured and wavelengths (nm)	Si	251.432; 251.611
	Al	237.312; 396.125
	Li	610.365; 670.783
	P	177.434; 213.618
	Ti	336.122; 337.280
	Zr	327.307; 343.823
	Zn	206.200; 334.502
	Mg	279.553; 280.270
	Ba	230.424; 455.403
	Ca	393.366; 422.673
	As	188.980; 193.696
	Sb	206.834; 231.146
Replicate read time (s)	5	
Replicates measured	3	

Table S2 Crystallization peak temperatures determined from the DSC curves (Figures 2 and 3) and calculated $T'_P - T_P$ parameter.

Heat treatment for 2 h			**Heat treatment at 670 °C**		
Treatment temperature, °C	T_P, °C	$(T'_P - T_P)$, °C	Treatment duration, h	T_P, °C	$(T'_P - T_P)$, °C
625	857	10	1	839	28
650	839	28	2	831	36
670	831	36	4	829	38
688	834	33			
700	843	24			
725	866	1			