Electronic Supplementary Information

In-situ Raman investigation of a LiB_3O_5 melt toward understanding the structural memory phenomena

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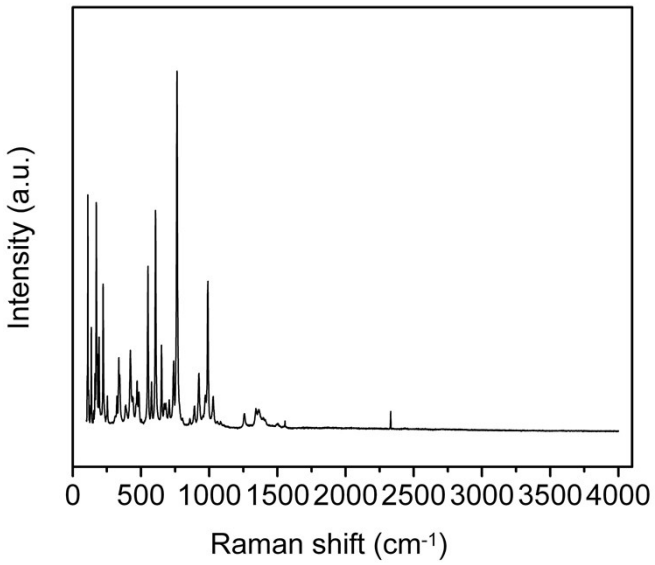

Fig. S1 The Raman spectrum of a LBO crystal slice used in our experiments.

A LBO boule grown by the top-seeded technique was cut into slices. The Raman spectrum of the slice was recorded in the spectral range of 100–4000 cm^{-1}. The result is shown in Fig. S1. Except for the Raman peaks of LBO (See: (1) Y.J. Jiang, Y. Wang, L.Z. Zeng, Analysis of Raman spectra of LiB_3O_5 single crystals, J. Raman Spectrosc. 27 (1996) 601−607; (2) H. R. Xia, S. M. Dong, Q. M. Lu, et al., Lattice vibrations and thermal conductance of $Li_2O(B_2O_3)_3$ crystals, J. Raman Spectrosc. 35 (2004) 148–152.), there are no peaks of a hygroscopic product or water present in the figure.

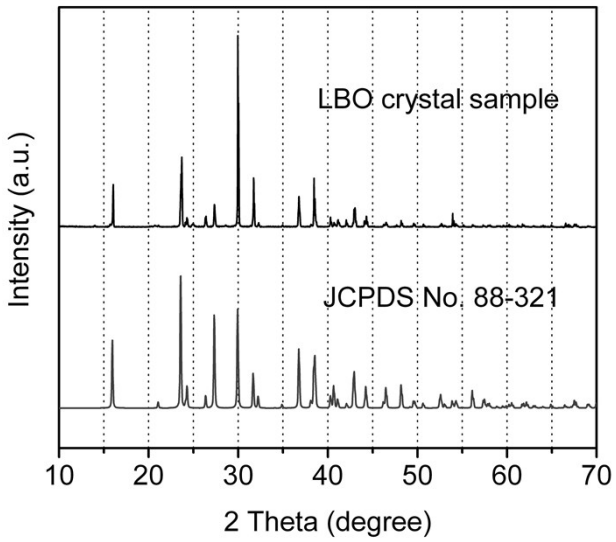

Fig. S2 The XRD pattern of a LBO crystal sample used in our experiment (top) and the data in the JCPDS XRD standard card (JCPDS No. 88-321) for comparison (bottom).

The LBO crystal slice was crushed into powder which was then characterized by the powder X-ray diffraction. The XRD pattern is shown in Fig. S2. As shown in the figure, except for the diffraction peaks of LBO, there are no peaks of a LBO hygroscopic product or water are present.

Both the above results show the LBO crystal is moisture-resistant. Thus, the effect of water on the experimental results was not considered in our study.