Electronic Supplementary Material (ESI) for Sustainable Energy & Fuels.

A novel $Ba_{0.95}La_{0.05}Fe_{0.9}Nb_{0.1}O_{3-\delta}$ ceramic electrode for symmetrical solid oxide fuel cells

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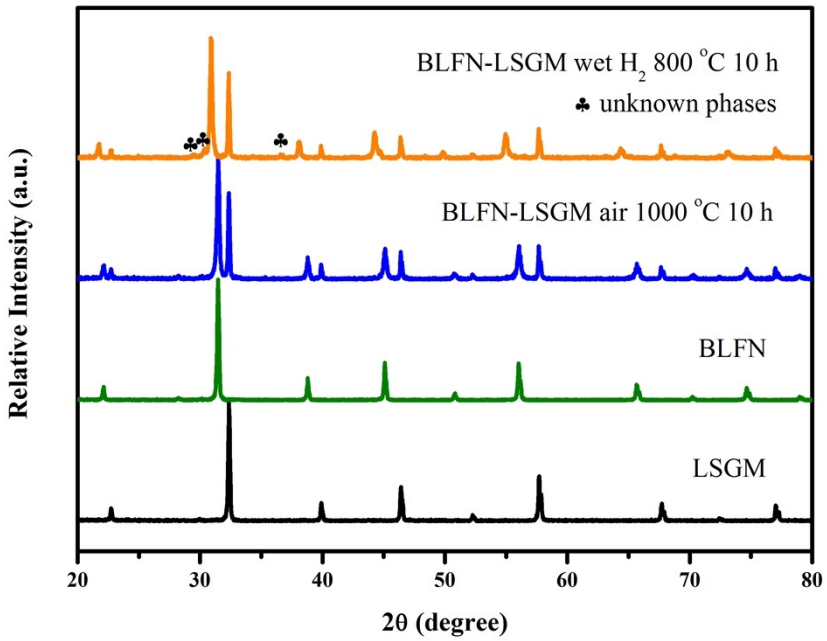

Fig. S1 XRD patterns of BLFN-LSGM composite powders treated in air and wet H_2 for 10 h.

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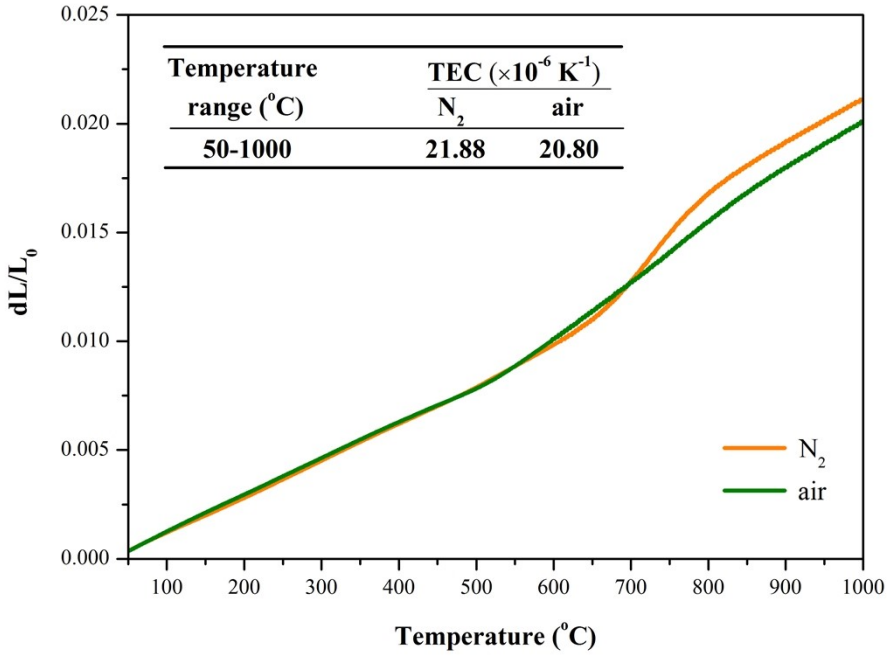

Fig. S2 Thermal expansion behaviors of the BLFN material in air and N_2.

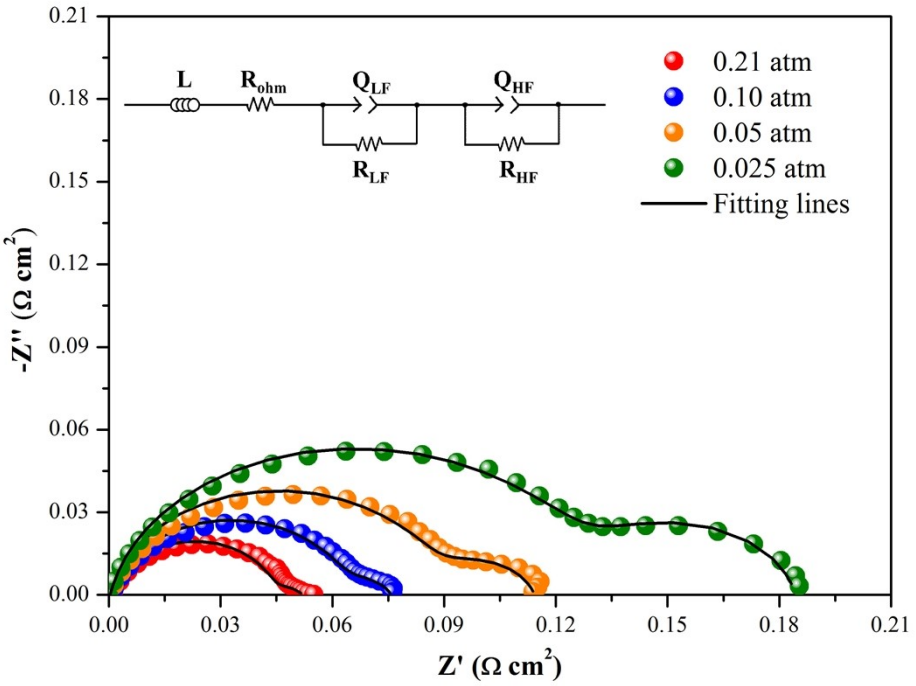

Fig. S3 Nyquist plots of the BLFN electrode measured at 750 °C under different PO_2 and PH_2, respectively. The inset is the equivalent circuit for fitting EIS.

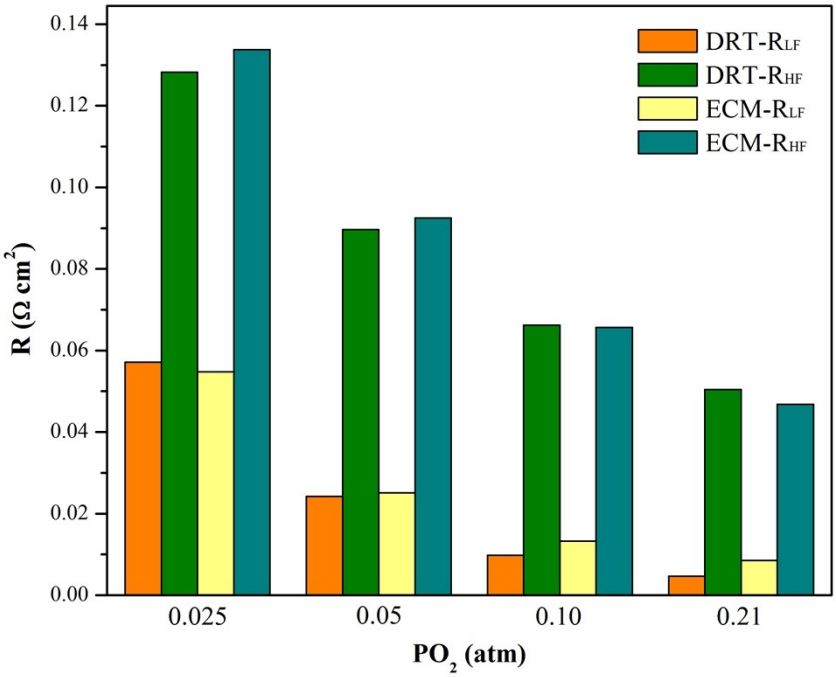

Fig. S4 Comparison of high- and low-frequency resistances obtained from DRT analysis and equivalent circuit fitting, respectively.

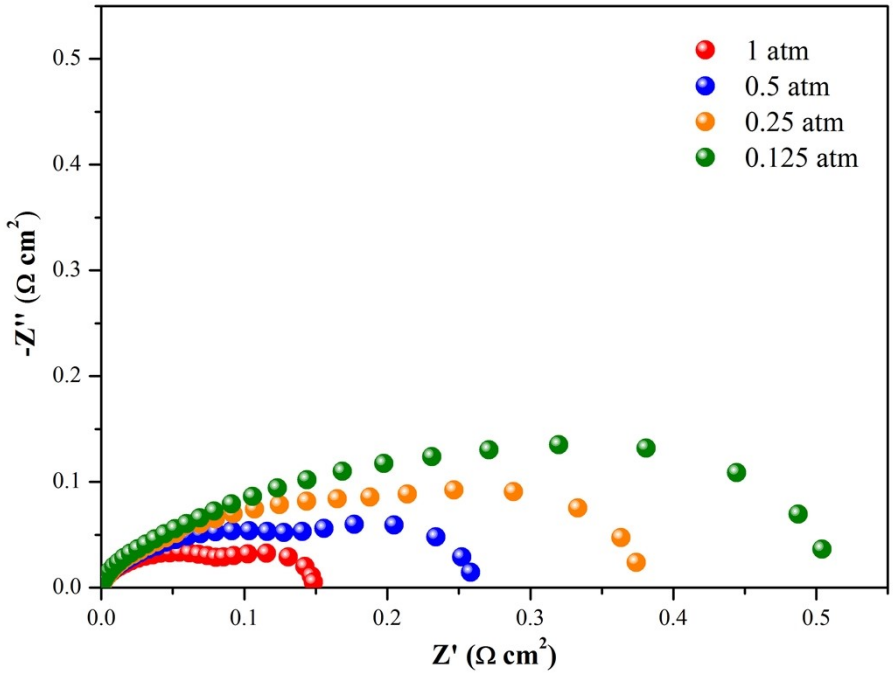

Fig. S5 Nyquist plots of BLFN|LSGM|BLFN symmetrical cell under various hydrogen partial pressure (PH_2)

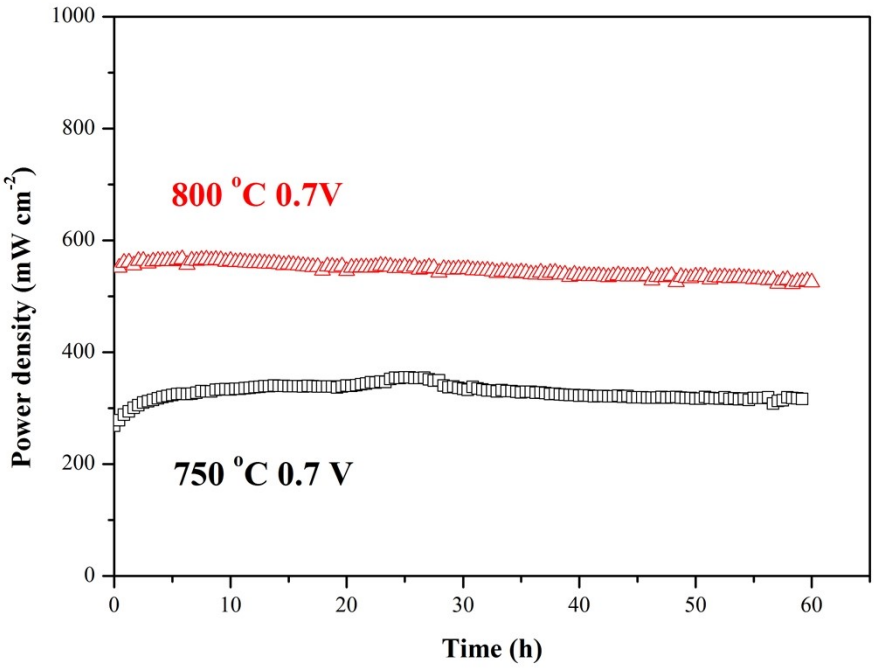

Fig. S6 The short-term stability of the single S-SOFC with the BLFN symmetrical electrode under a constant working voltage of 0.7 V.