

Electronic Supplementary Information

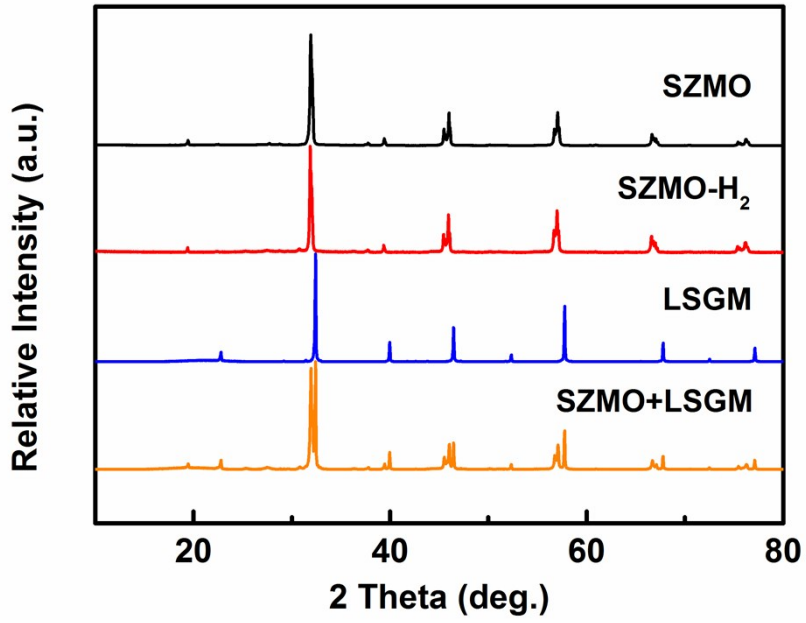
**A high active CH<sub>4</sub> catalyst correlating with Solid oxide fuel cells  
anode performance**

Yuanhui Su<sup>a</sup>, Tao Wei<sup>a,\*</sup>, Yining Li<sup>a</sup>, Baoyi Yin<sup>a</sup>, Yu Huan<sup>a\*</sup>, Dehua Dong<sup>a</sup>, Xun Hu<sup>a</sup>, and Bolong Huang<sup>b,\*</sup>

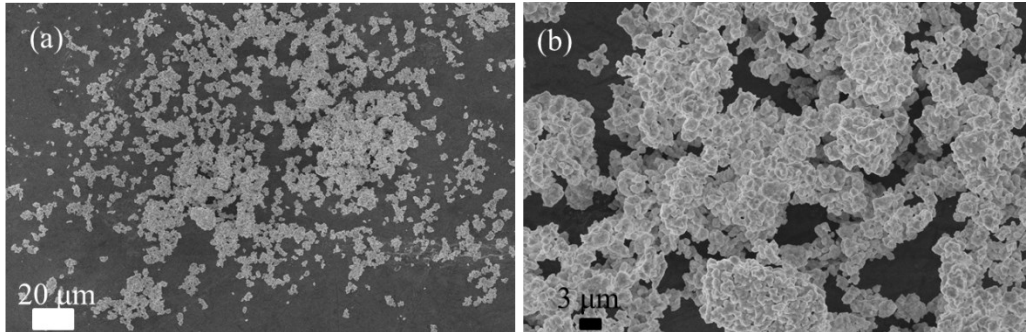
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<sup>a</sup> School of Materials Science and Engineering, University of Jinan, 336 Nanxinzhuang West Road, Jinan, Shandong 250022, P. R. China. E-mail: mse\_wei@ujn.edu.cn; mse\_huany@ujn.edu.cn

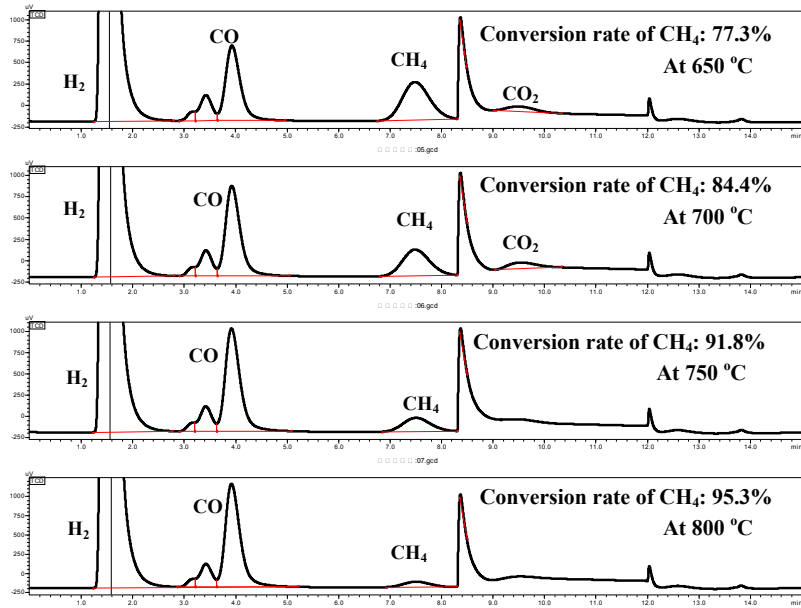
<sup>b</sup> Department of Applied Biology and Chemical Technology, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong SAR, China. E-mail: bhuang@polyu.edu.hk



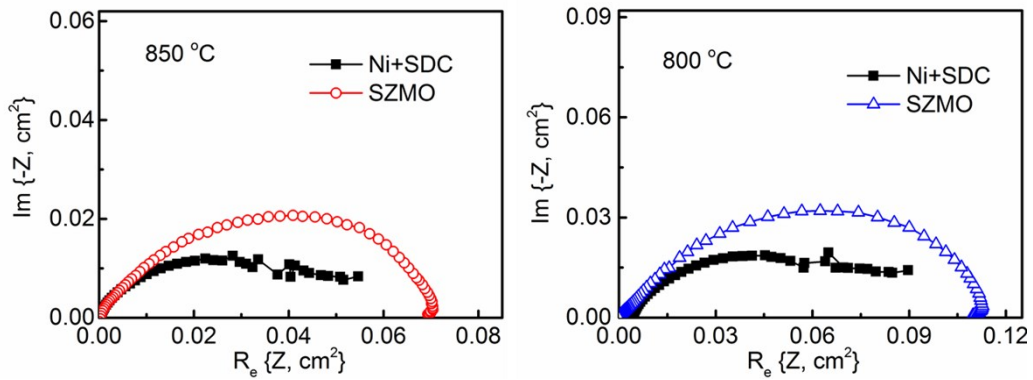
**Fig. 1.** The XRD patterns of P-SZMO, H<sub>2</sub> reduced SZMO, LSGM and the mixture of P-SZMO+LSGM after firing at 1100 °C for 10 hours.



**Fig. 2.** The particle size of SZMO powder evaluated by SEM with the scale bar at (a) 20 μm and (b) at 3 μm, respectively.



**Fig. S3.** The final products of CH<sub>4</sub> oxidation by SZMO anode tested from 650 to 800 °C.



**Fig. S4.** The half-cell EIS with Ni-SDC and SZMO as symmetric electrodes exposing in H<sub>2</sub> and tested at 800 and 850 °C.