

Electronic Supplementary Information

Single Crystalline $\text{La}_{0.5}\text{Sr}_{0.5}\text{MnO}_3$ Microcubes as Cathode of Solid Oxide Fuel Cell

Mingjia Zhi^{1,2}, Guangwen Zhou³, Zhanglian Hong⁴, Jin Wang^{1,2}, Randall Gemmen¹, Kirk Gerdes¹, Ayyakkannu Manivannan^{1,2}, Dongling Ma⁵ and Nianqiang Wu^{1,2,*}

¹National Energy Technology Laboratory, Department of Energy, 3610 Collins Ferry Road, Morgantown, WV, 26507, USA

²Department of Mechanical and Aerospace Engineering, West Virginia University, Morgantown, WV, 26506-6106, USA

³Department of Mechanical Engineering, Binghamton University, Binghamton, NY, 13902, USA

⁴State Key laboratory of Silicon Materials and Department of Materials Science and Engineering, Zhejiang University, Hangzhou 310027, P. R. China

⁵Institut National de la Recherche Scientifique, INRS-Énergie, Matériaux et Télécommunications, 1650 Boulevard Lionel-Boulet, Varennes, Québec J3X 1S2, Canada

*Corresponding author: E-mail: nick.wu@mail.wvu.edu, Tel: +1-(304)-293-3326, Fax: +1-(304)-293-6689

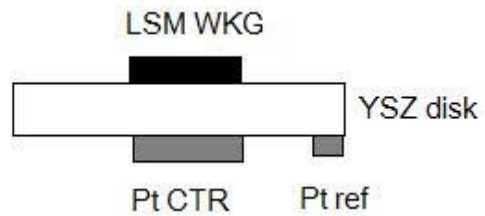


Fig.S1 Schematic illustration of the SOFC half cell

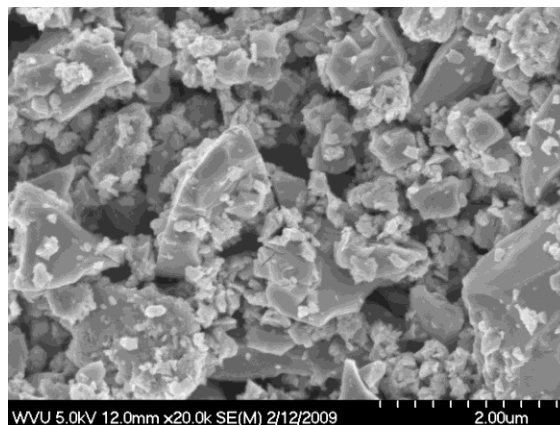


Fig.S2 SEM image of the commercial LSM powder

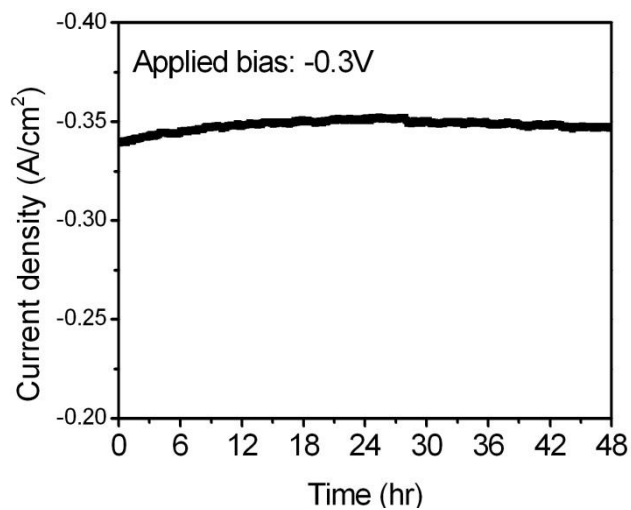


Fig.S3 The electric current density as a function of the operating time for the LSM microcube/YSZ composite electrode at 900 °C

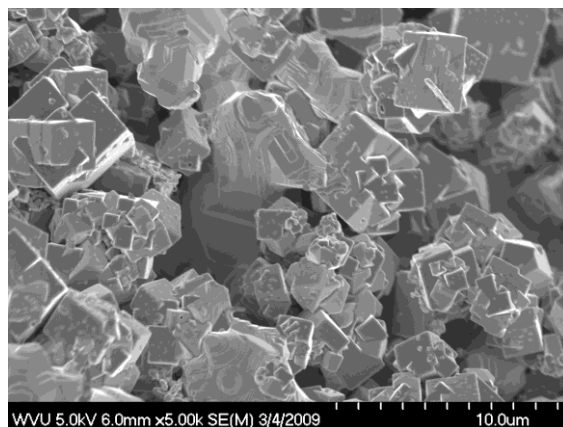


Fig.S4 The morphology of the LSM microcubes after operation at 900 °C for 48 h