Supporting Information

Ca₂Co₂O₅ as thermoelectric SOFC cathode material

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Figure S1. XRD of CCO obtained after calcination in air and oxygen at 800 °C.



Figure S2. The Co2p core level XPS spectra of CCO2.



Figure S3. Conductivity data of CCO1 and CCO2 measured in air from 300 to 850 °C.



Figure S4. Power density dependent on operation time at 750 °C for CCO2 conventional

fuel cell.



Figure S5. Cell voltage and power density as functions of current density for improved

thermoelectric SOFCs structure with dense CCO2 column as cathode.



Figure S6. Impedance spectra of the symmetrical half cell using CCO2 as electrodes measured in air at 700, 750, and 800 ° C.



Figure S7. SEM images for the fuel cell with CCO2 as cathode after testing at 800 °C. a) Cross section of the cell configuration. b) The surface of the CCO2 cathode. c) Section between CCO2 cathode and LSGM electrolyte. d) Energy-dispersive X-ray (EDX) analysis of the CCO2 cathode surface (the ratio of Ca with Co about 1:1).