

Supplementary materials

Performance enhancement of $\text{Ce}_{0.8}\text{Sm}_{0.2}\text{O}_{1.9}$ -supported SOFC by Electrophoretic Formation of Modifying $\text{BaCe}_{0.8}\text{Sm}_{0.2}\text{O}_3$ and $\text{Ce}_{0.8}\text{Sm}_{0.1}\text{Pr}_{0.1}\text{O}_{1.9}$ Layers

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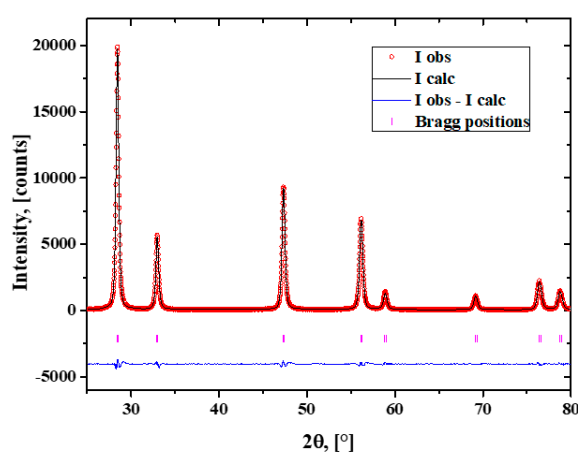
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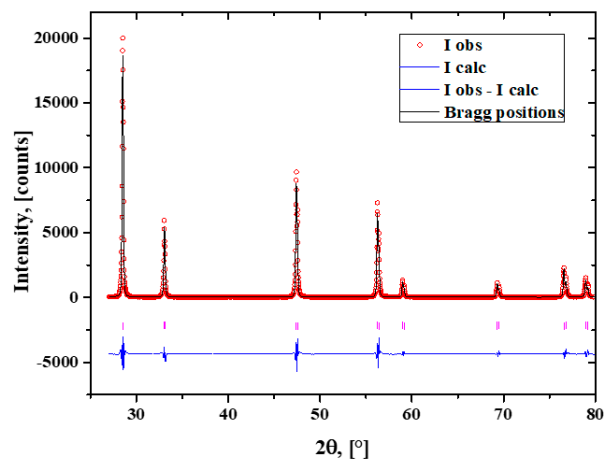
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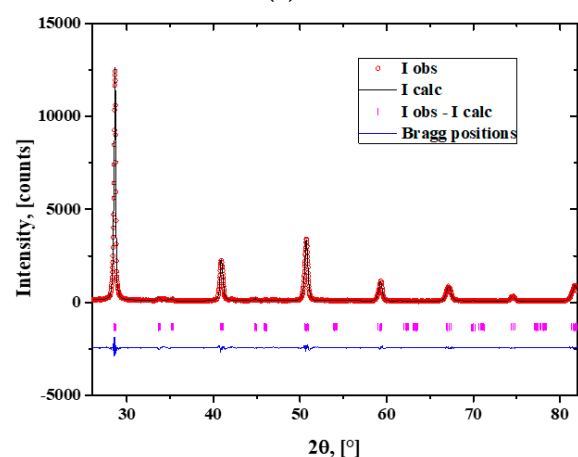
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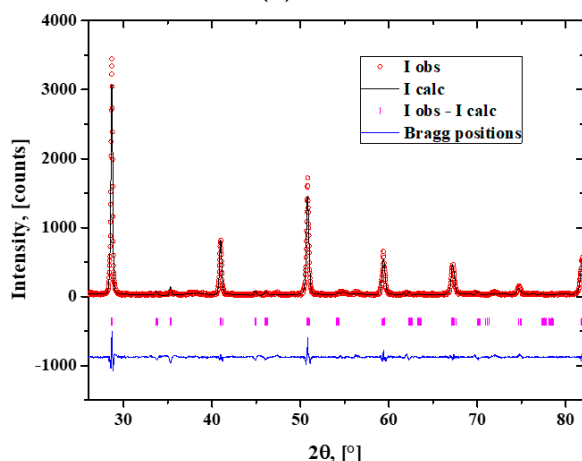
(a) SDC



(b) PSDC



(c) BCS-CuO



(d) BCGCu

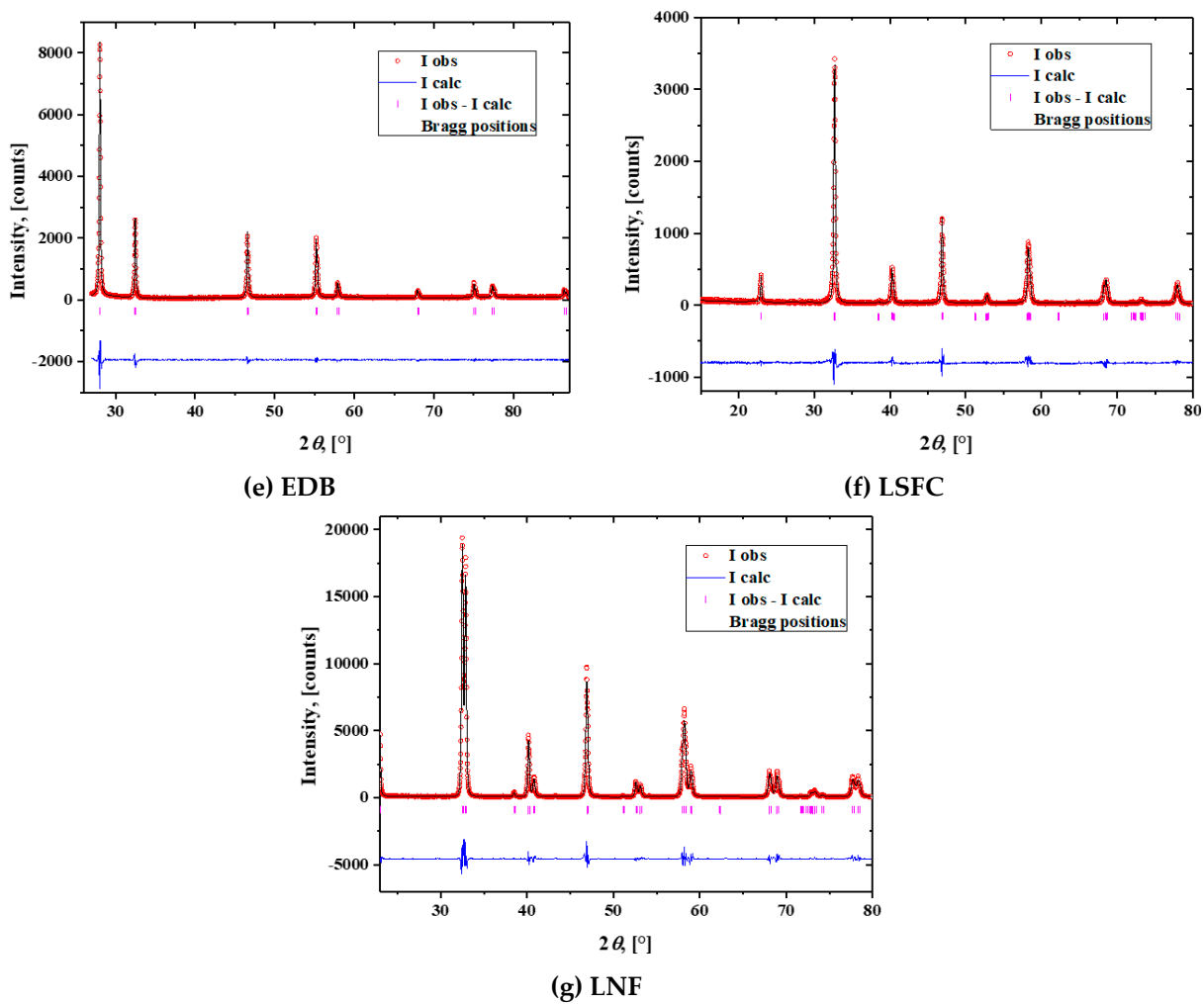
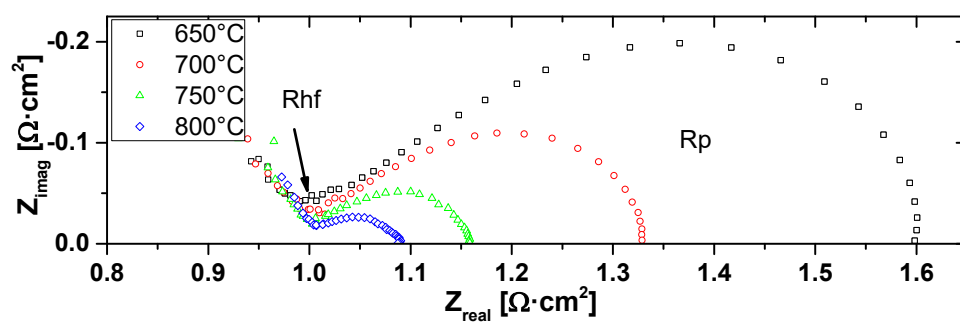
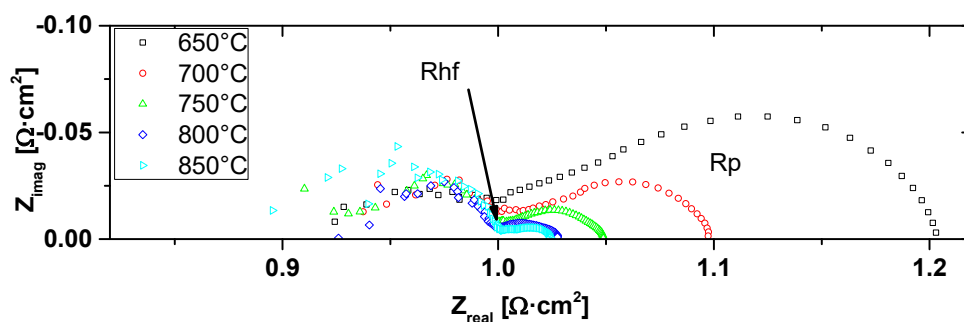


Figure S1: XRD patterns obtained for the powders after the final calcination/sintering step: (a) SDC powder (1600 °C); (b) PSDC powder (800 °C); (c) BCS-CuO powder (1150 °C); (d) BCGCu powder (1100 °C); (e) EDB powder (600 °C); (f) LSFC powder (1100 °C); (g) LNF powder (900 °C).



(a)



(b)

Figure S2 Electrode response obtained under OCV conditions in the SOFC mode for the single cells with the Ni-BCGCu anode and the LSFC-SDC/LNF-EDB-CuO cathode and the supporting electrolyte membrane comprising with the BCS-CuO anode layer (18 μm) – (a); with the BCS-CuO anode layer (18 μm) and the PSDC cathode layer (6 μm)

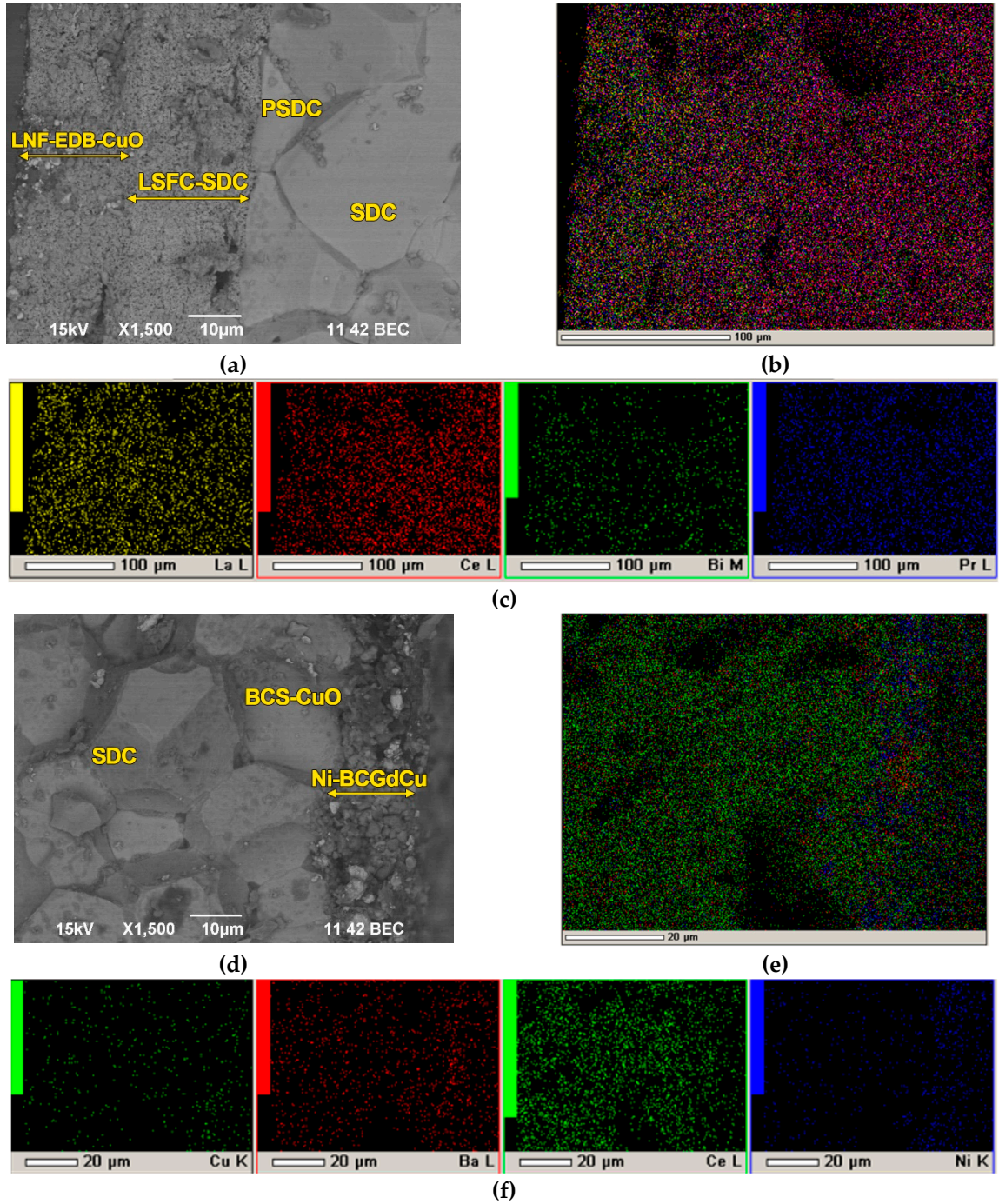


Figure S3 Cross sectional images for the Ni-BCGdCu/BCS-CuO/SDC/PSDC/LSFC-SDC/LNF-EDB-CuO cell (SDC2 cell) after testing in the SOFC mode: SEM images obtained on the cathode side - (a), (b), (c); SEM images on the anode side - (d), (e), (f) Cross sectional SEM images, x1500 magnification - (a), (d); integrated maps of element distribution - (b), (e); individual maps of elements - (c), (f)