Supplementary information

New Dy-doped $BaCeO_3$–$BaZrO_3$ proton-conducting material as a promising electrolyte for reversible solid oxide fuel cells

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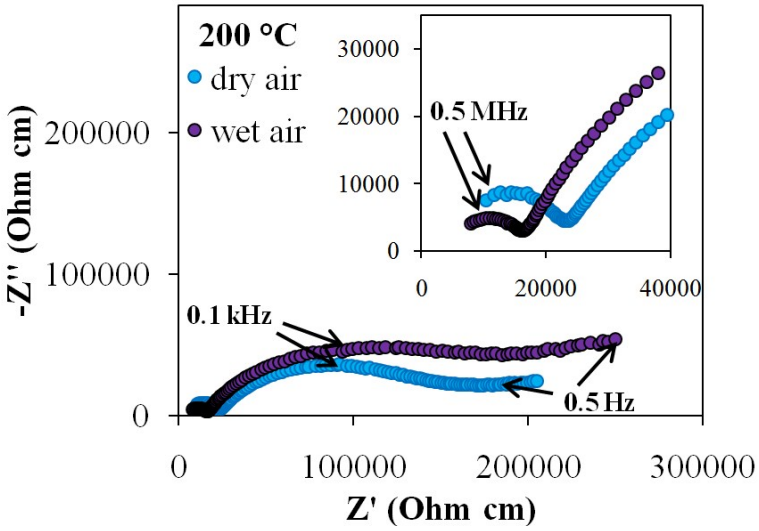

Figure S1 The examples of impedance spectra for $BaCe_{0.5}Zr_{0.3}Dy_{0.2}O_{3-\delta}$ samples obtained in dry and wet air at 200 °C. An equivalent circuit consisting of three RQ elements in series (where R represents a resistance and Q represents a constant phase element) was used for the interpretation of the impedance spectra.

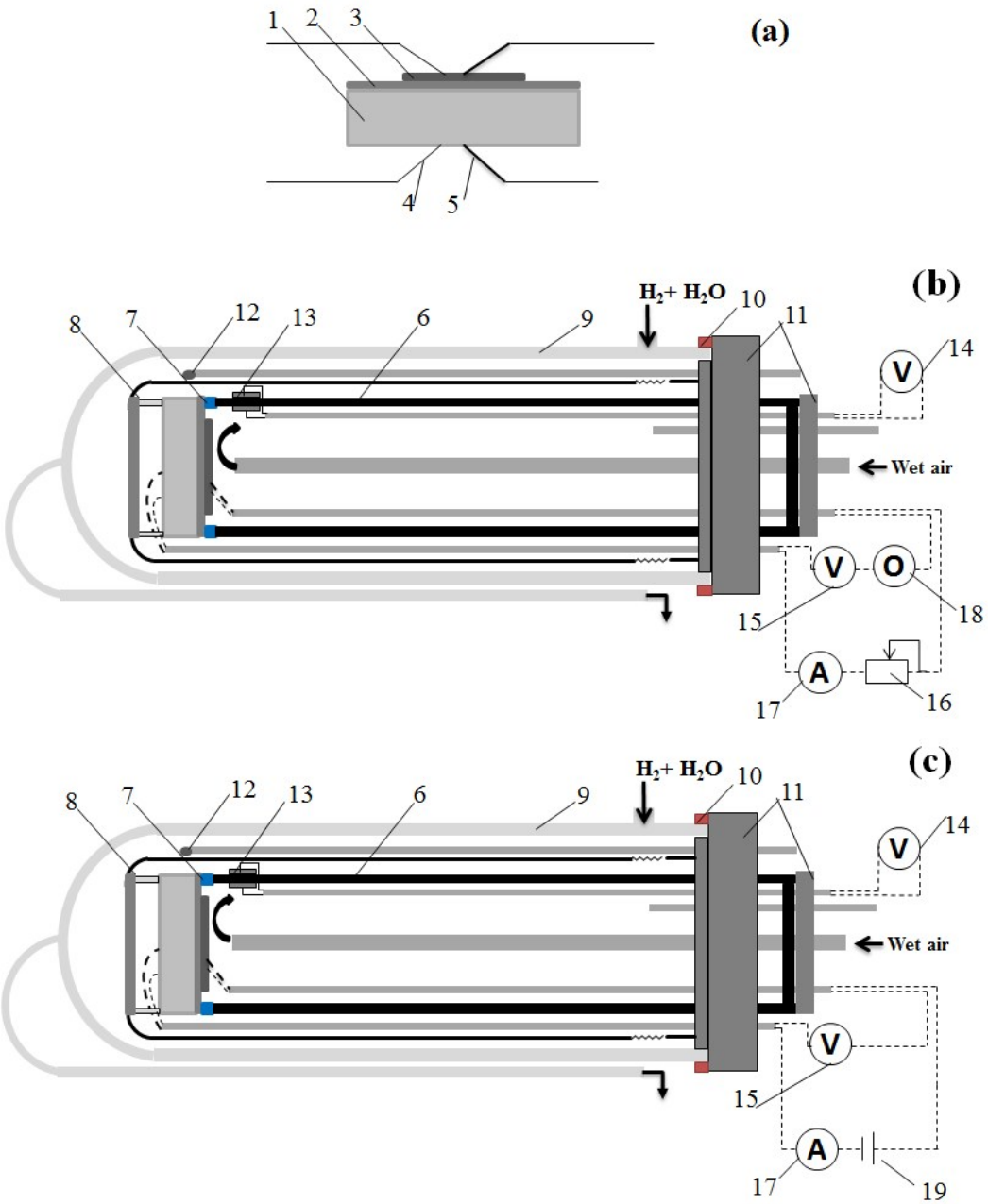

Figure S2 The principal schemes of unit cell (a) and electrochemical systems for cell's characterization SOFC (b) and SOEC (c) modes: 1 – supported and functional layers,2 – electrolyte,3 – cathode and collector layers,4 and 5 – potential and current platinum wires,6 – YSZ supported tube,7 – high-temperature glass sealant,8 – press part,9 – quartz cell,10 – low temperature polymeric sealant,11 – fluoroplastic probes,12 – thermocouple,13 – electrochemical oxygen sensor,14 – voltmeter,15 – voltmeter,16 – resistance box, 17 – amperometer,18 – oscilloscope, 19 – current source

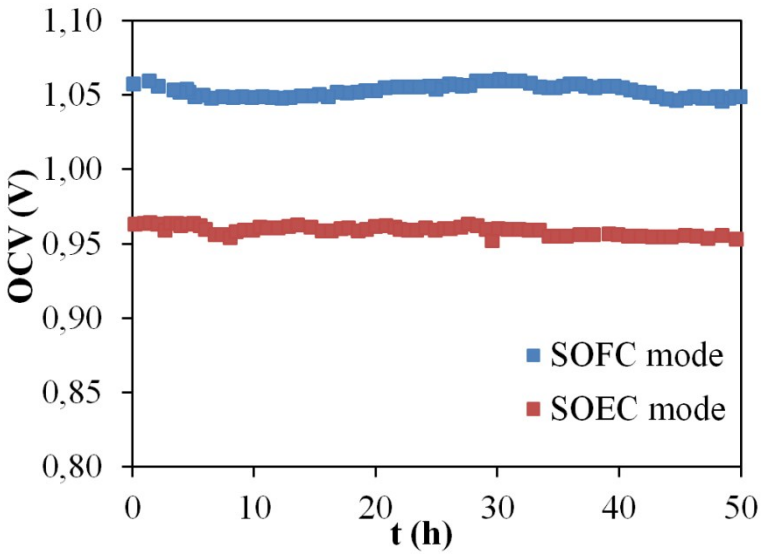

Figure S3 Time dependence of OCV values depending on time at 600 °C.