

Electronic Supplementary Information (ESI) for

**Novel phosphorus-doped PbO₂-MnO₂ bicontinuous
electrodes for oxygen evolution reaction**

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Fig. S1 Low resolution SEM images showing the surface morphology of the P-(PbO₂-MnO₂) deposits obtained by adding (a) 0.01 g L⁻¹, (b) 0.03g L⁻¹, (c) 0.05 g L⁻¹ Mn²⁺ (in the form of Mn(NO₃)₂) in the basic deposition solution.

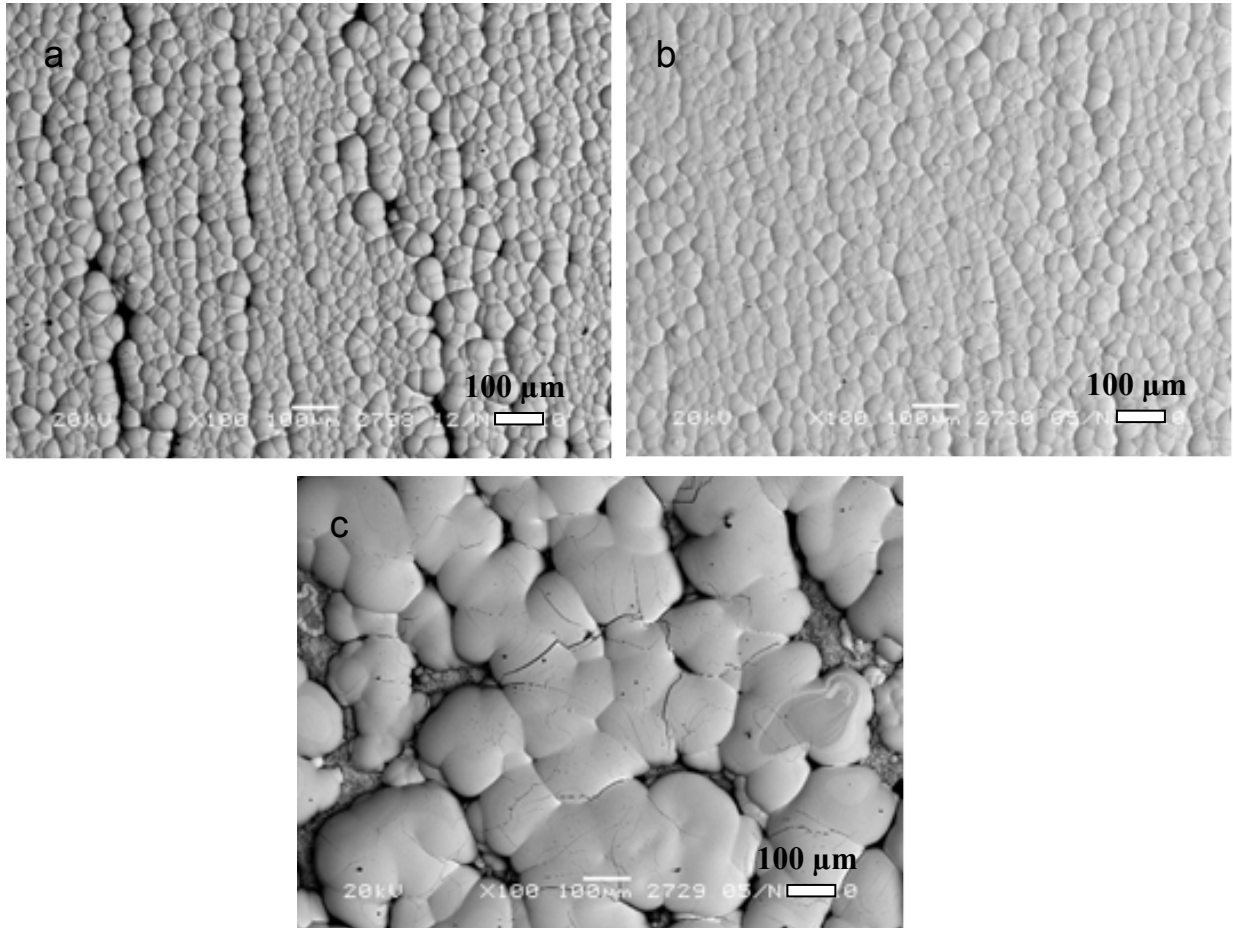


Fig. S2 Low resolution SEM images showing the surface morphologies of (P-PbO₂)-MnO₂ deposits obtained by adding (a) 1 g L⁻¹ and (b) 20 g L⁻¹ MnO₂ particle in the basic deposition solution (corresponding MnO₂ content in deposit: (a) 1.78 wt.%, (b) 8.17 wt.%).

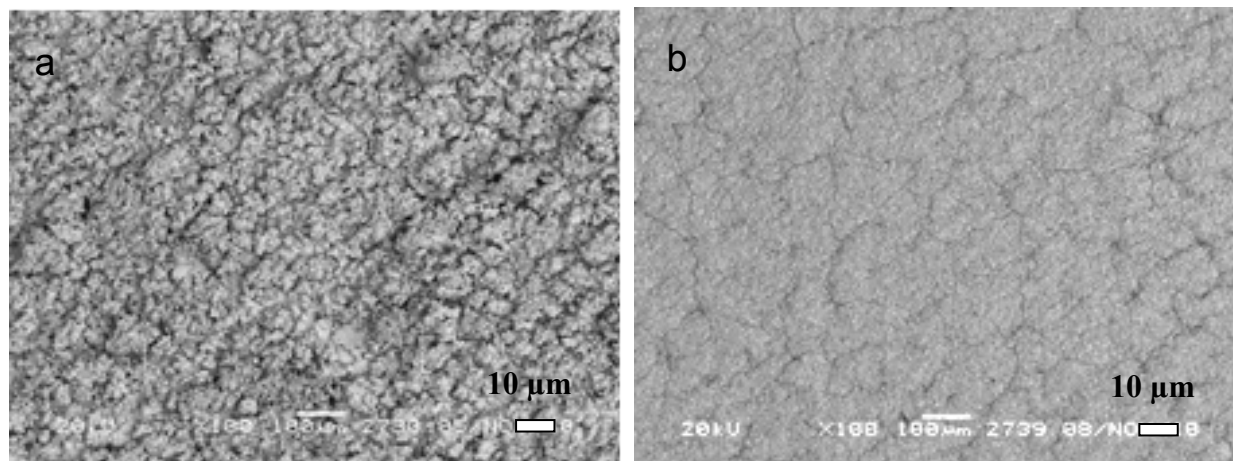


Fig. S3 SEM back-scattered electron images showing the contrast difference of PbO_2 matrix and MnO_2 particles in the (P- PbO_2)- MnO_2 bicontinuous electrode. Exposed MnO_2 particles were representatively marked with red arrows.

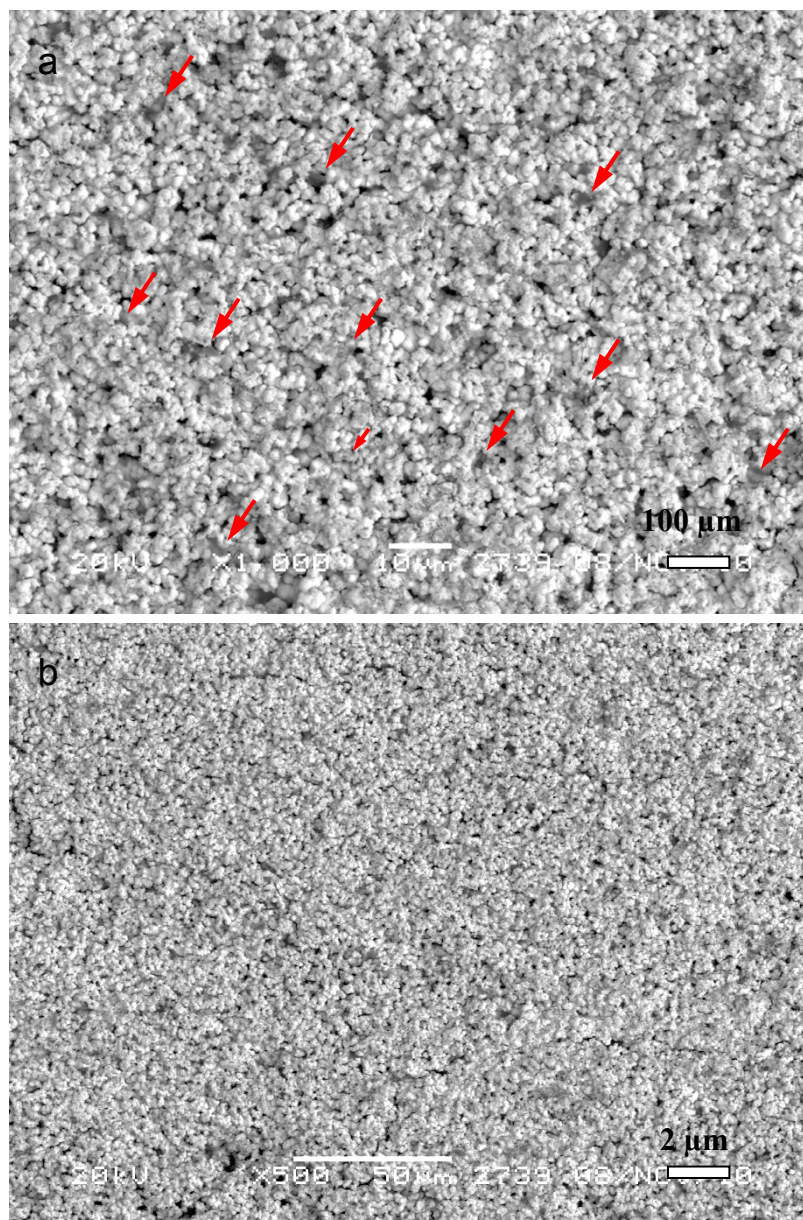


Fig. S4 XRD spectra of the as-produced P-PbO₂, P-(PbO₂-MnO₂), and (P-PbO₂)-MnO₂ deposit. The P-(PbO₂-MnO₂) deposit corresponds to Fig. 3b with a MnO₂ content of 0.60 wt.%. The (P-PbO₂)-MnO₂ deposit corresponds to Fig. 3e and f with a MnO₂ content of 8.17 wt.%.

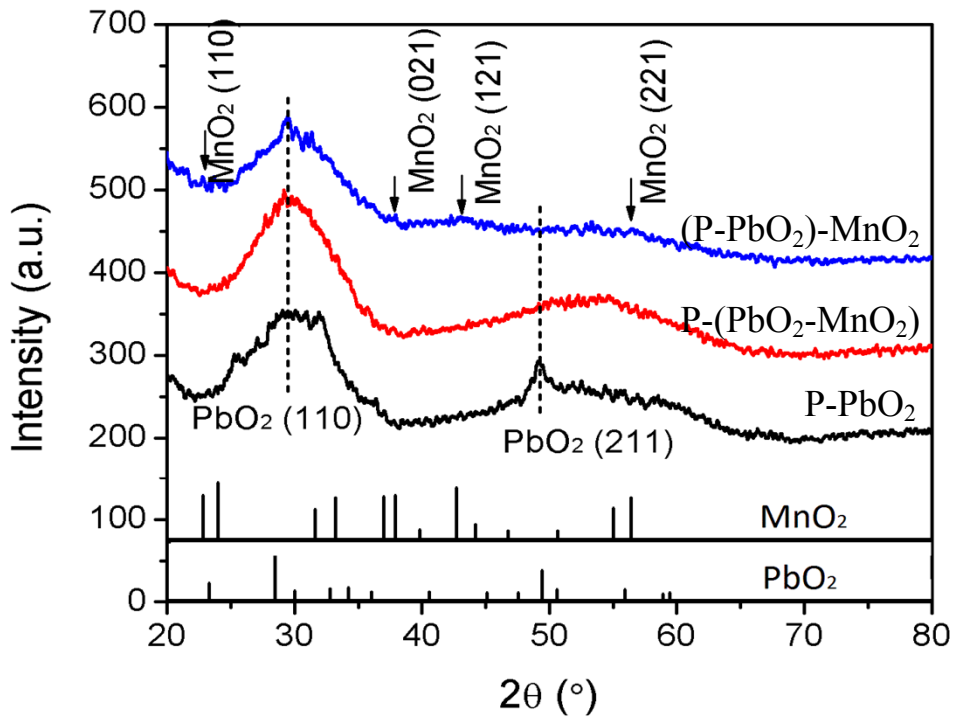


Fig. S5 Nyquist spectra of the stabilized (a) P-PbO₂, (b) P-(PbO₂-MnO₂), and (c) (P-PbO₂)-MnO₂ composite anodes at various anodic potentials. This shows the small capacitive arcs in the high frequency region in Fig. 6b.

