Electronic Supplementary Information (ESI)

Functionalized and Platinum-Decorated Multi-Layer Oxidized Graphene as a Proton, and Electron Conducting Separator in Solid Acid Fuel Cells

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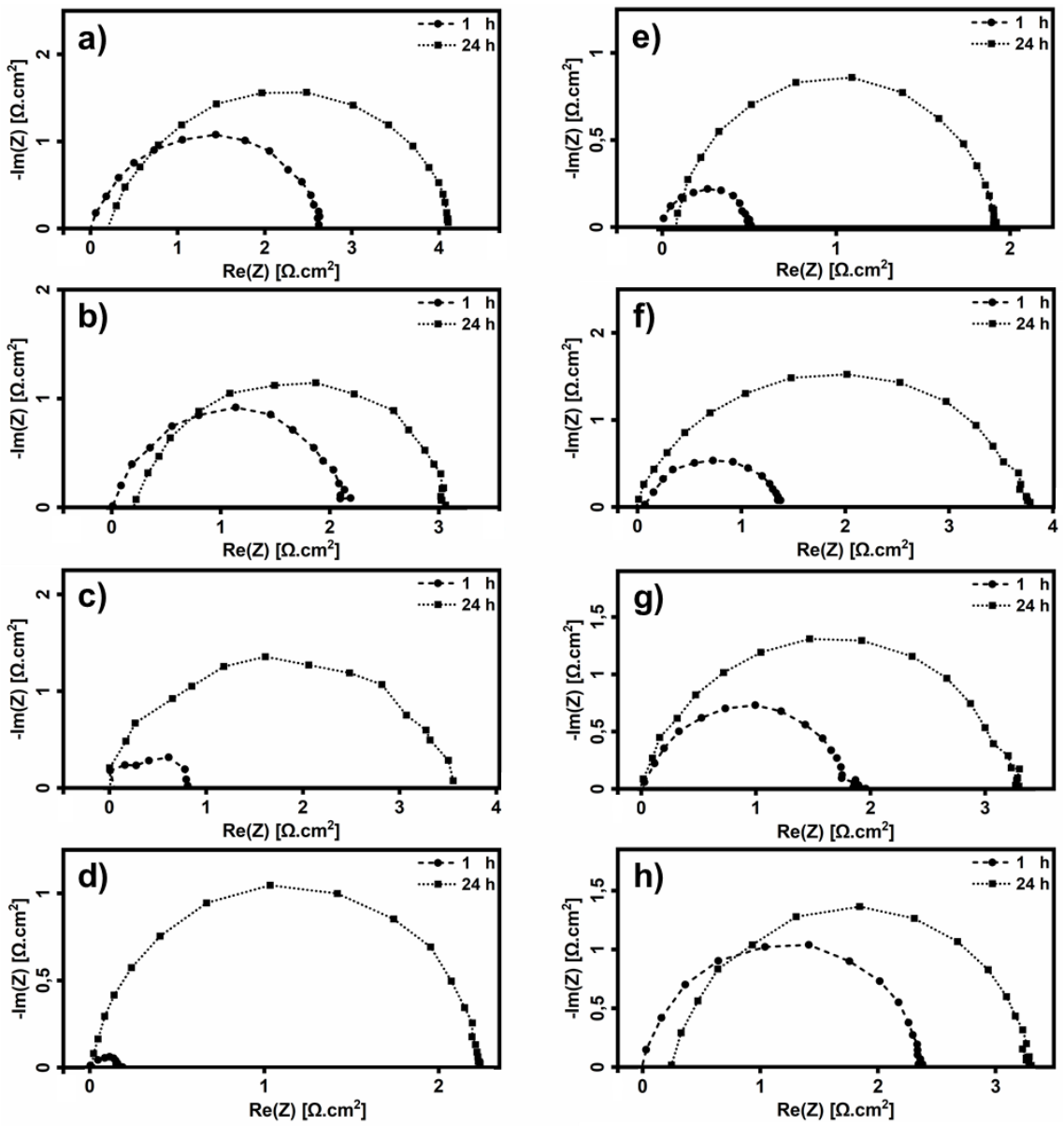


Figure S1. Nyquist Plots of electrodes based on a) 2 nm, b) 4 nm, c) 6nm, d) 8 nm, e) 10 nm, f) 30 nm, g) 60 nm, h)100 nm Pt films sputtered directly on the CsH_2PO_4/powder electrode pellets. The frequency range was 100 kHz to 10 mHz with an applied voltage amplitude of 10 mV, with frequency decreasing from left to right along the x-axis. The electrolyte re-sistance was subtracted.

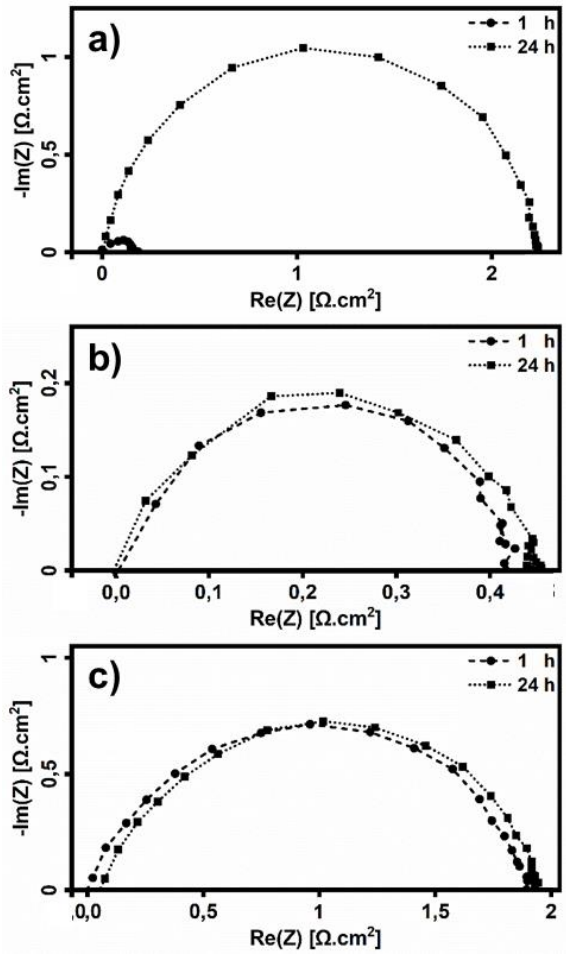


Figure S2. Nyquist Plots of electrodes based on 8 nm Pt films sputtered on: a) directly the CsH_2PO_4/powder electrode pellets, b) in the presence of ~3-layers, and c) in the presence of ~5-layers separators between the CsH_2PO_4 and the sputtered Pt films. The frequency range was 100 kHz to 10 mHz with an applied voltage amplitude of 10 mV, with frequency decreasing from left to right along the x-axis. The graphene samples transferred using PMMA and iron chloride in hydrochloric acid as an etchant. The electrolyte resistance was subtracted.