

Supporting information

Single Wall Carbon Nanotube based Proton Exchange Membrane Assembly for Hydrogen Fuel Cells

G. Girishkumar,¹ Matthew Rettker,¹ Robert Underhile,¹ David Binz,³ K. Vinodgopal,¹ Paul McGinn³ and Prashant Kamat^{1,3*}

Radiation Laboratory and Dept. of Chemical and Biomolecular Engineering, University of Notre Dame, Notre Dame, IN 46556
and
Department of Chemistry,
Indiana University Northwest, Gary, IN 46408

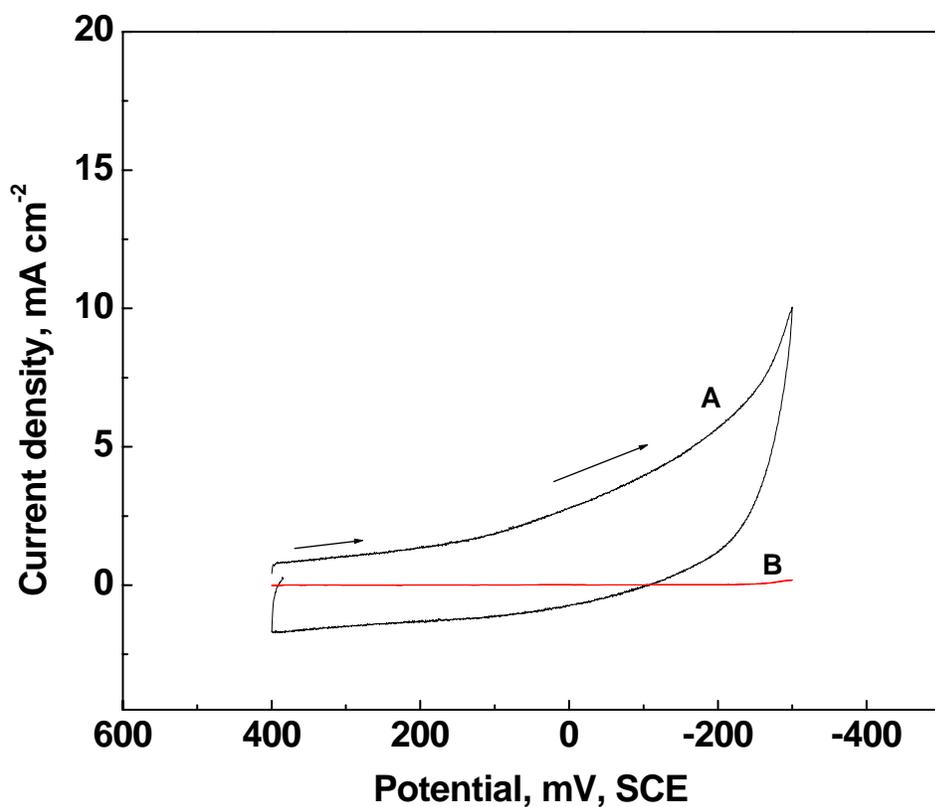


Figure S1: Cyclic voltammograms for the hydrogen evolution reaction (HER) at (A) CFE/SWCNT and (B) CFE/CB electrodes. (Scan rate: 50 mV/cm; electrolyte: 1 M H₂SO₄; reference electrode: SCE) The area of the electrode in all cases was 1.4 cm².

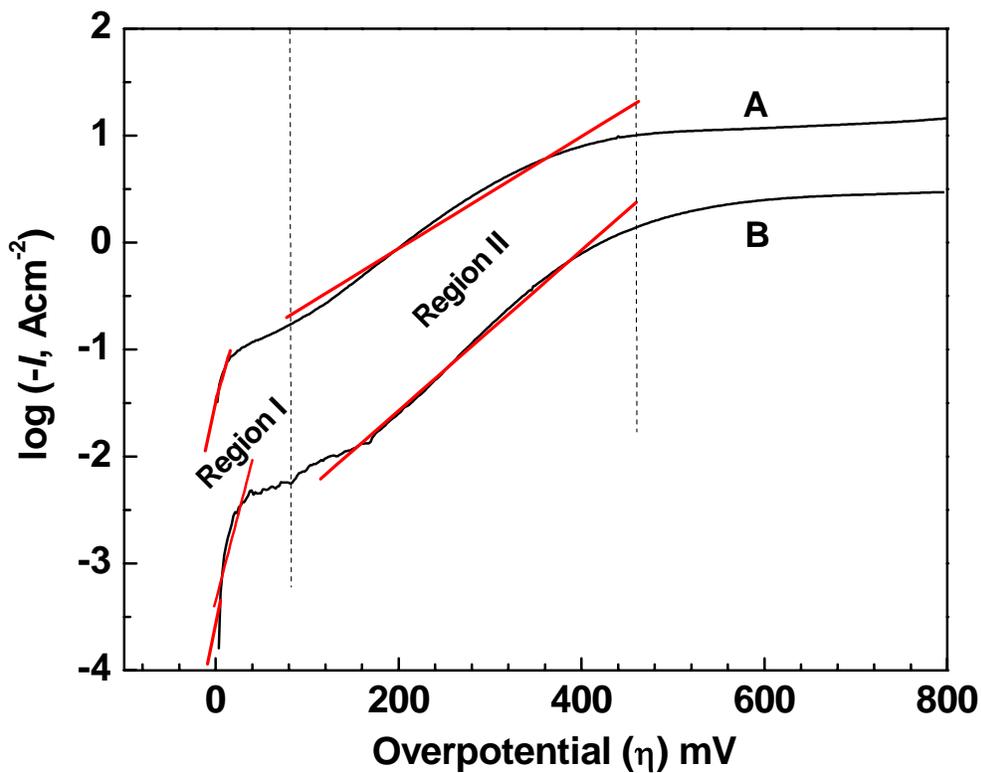


Figure S2: Tafel polarization curves for the HER at (A) CFE/SWCNT/Pt electrode and (B) CFE/CB/Pt electrode in 1M H_2SO_4 . The scan rate was 20mV/sec and the area of the electrode was 1.4 cm^2 .

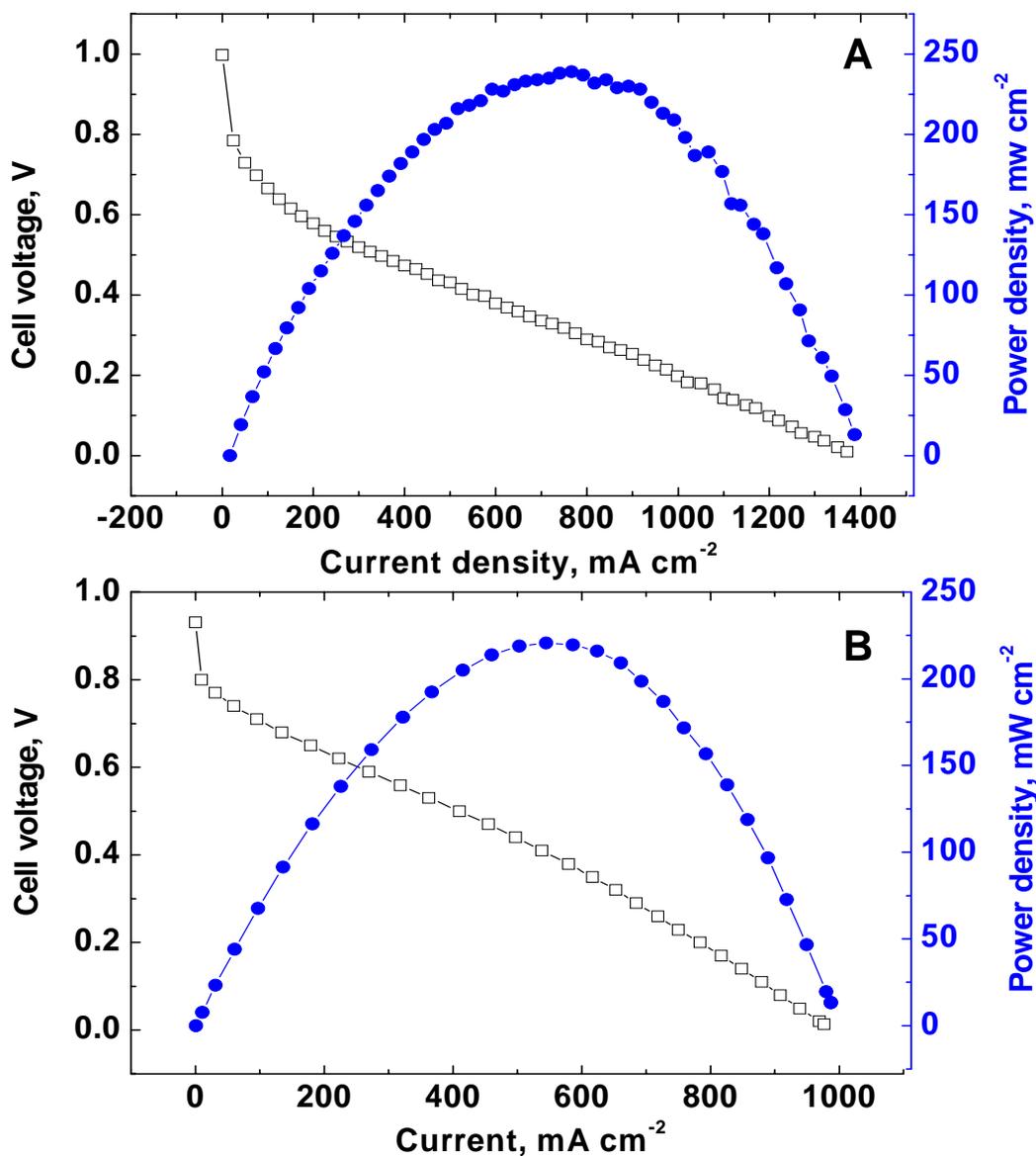


Figure S3: Power density and galvanostatic polarization data at 60°C of (A) an MEA prepared using a CFE/SWCNT/Pt anode and cathode (B) an MEA prepared using a CFE/CB/Pt anode and cathode. The fuel cell was subjected to preconditioning procedures as described in reference 43. The loading of Pt on all electrodes was 0.20 mg cm⁻² and carbon support 1 mg cm⁻². The electrolyte was Nafion 117, electrode area 5 cm².