



Figure S1. MEA activation via cyclic voltammetry, showing the cleaning and restoration cycles for the CNW-based MEA, and for the reference MEAs with carbon black and graphenes. The hydrogen desorption peaks are more intense in the case of CNW, thus the activation of the MEA_CNW is much faster. CVs show a selection of cycles out of a total of 500 until stabilization is achieved. MEA activation was conducted under the following stable conditions: 70 kPa backpressure pressure, 80 °C temperature and 80% RH, 150 SCCM H₂ flow at the anode and 150 SCCM N₂ flow at the cathode.