Supporting Information

Preparations and Electrochemical Characterizations of

Conductive Porphyrin Polymers

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1.   **Interfacial polymerization**

2.   **Cyclic voltammetry**

3.   **Transmission line equivalent circuit model**

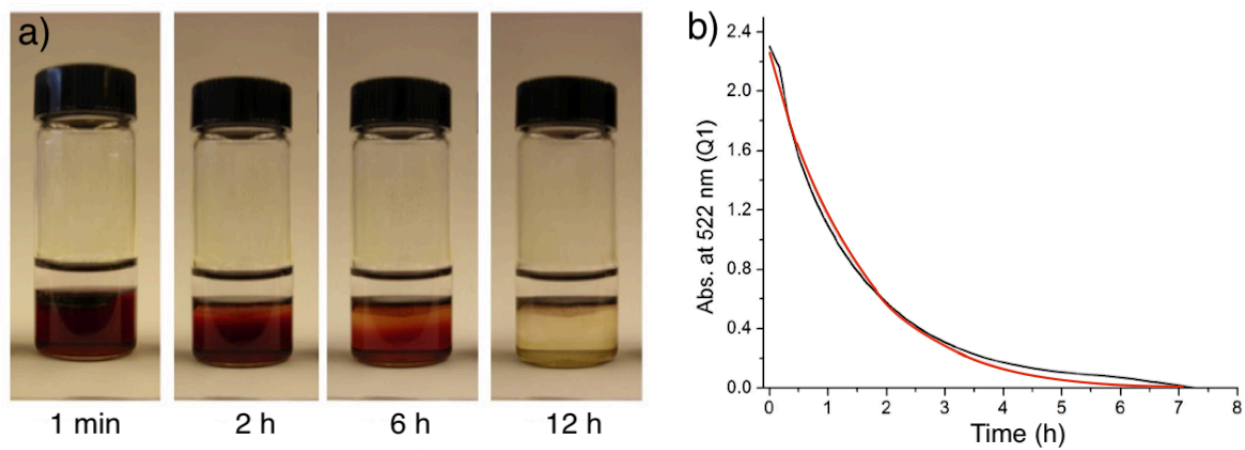# 1. Interfacial polymerization

Figure S1. (a) Interfacial polymerization of TAPP in DCM with aqueous APS over 12 h, (b) relative concentration of TAPP in solution (a gently stirred solution, unlike that in part (a), with first order decay fit (red line).
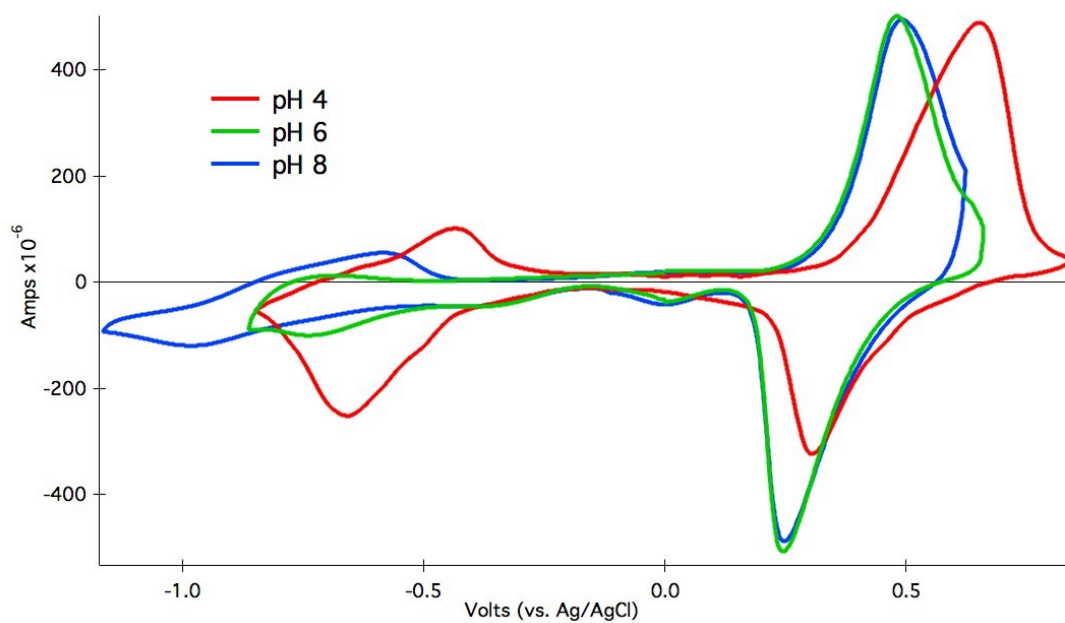
2. Cyclic voltammetry

Figure S2. Cyclic voltammograms of a pTAPP film in aqueous 0.1 M KCl adjusted to pH 4 (red), pH 6 (green), or pH 8 (blue) at a scan rate of 20 mV/sec, showing both oxidation and reduction peaks .

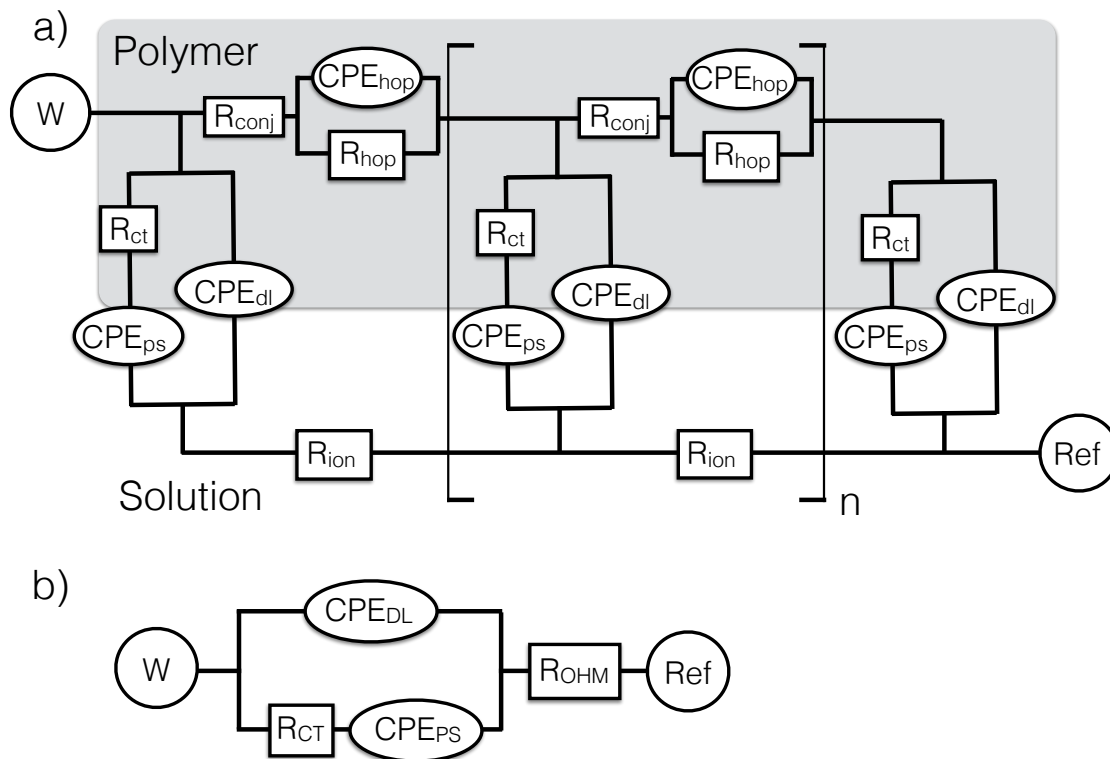### 3. Transmission line equivalent circuit model

Figure S3. (a) Typical transmission line model used to evaluate porous polymer films on metal electrodes. (b) Equivalent circuit model used to analyze Nyquist and Bode plots. Individual elements are defined in the text.