

Supporting information available for:

**Decreasing Operating Potential for Water Electrolysis to
Hydrogen via Local Confinement of Irion-Based Soft
Coordination Suprapolymers**

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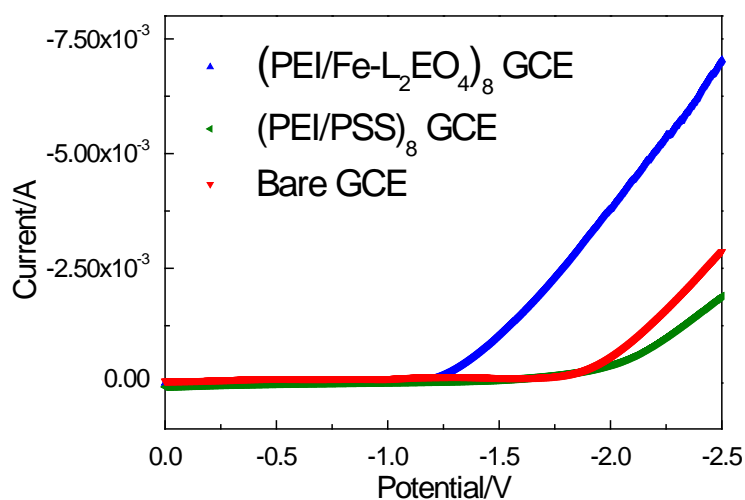
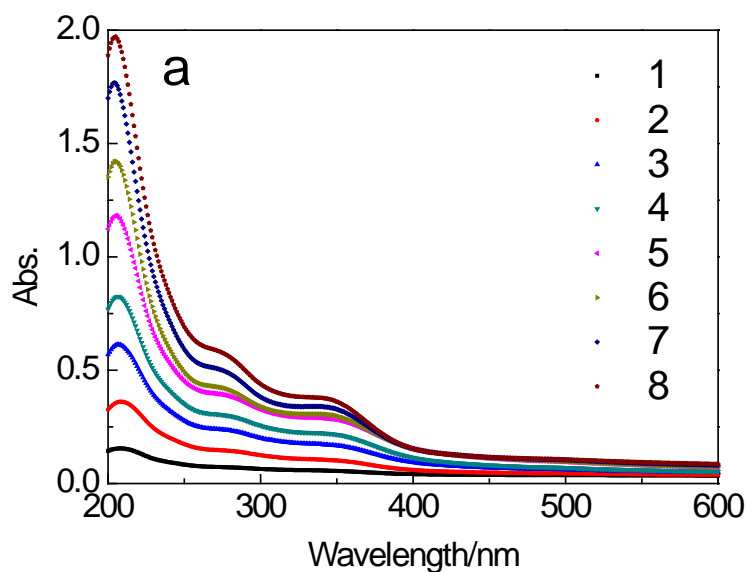


Figure S1. Experimental voltammetry of H^+ reduction at the different GCE surface. Replacing the Fe-SCSP (the blue line) with another negatively charged electrolytes-polystyrene sodium sulphite (PSS), only decreases of the proton reduction current without a potential movement was observed(the green line). This control experiment demonstrated that the Fe-SCSP is very crucial in the catalytic hydrogen evolution.



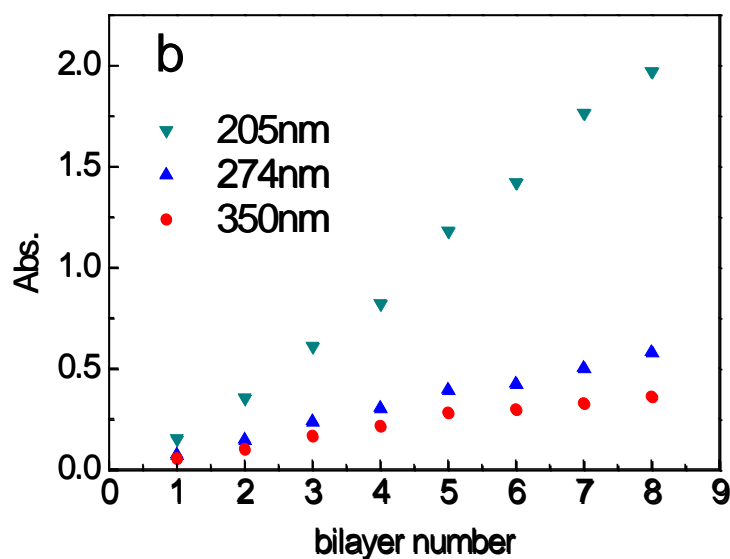


Figure S2. The linear growth of the mass of the layer by layer assembly film: (a) The UV-Vis spectroscopy of the $(\text{PEI}/\text{Fe}^{3+}\text{-L}_2\text{EO}_4)_n$ layer by layer assembly film on the quartz glass substrate, bilayer number $n = 1, 2, 3, 4, 5, 6, 7, 8$; (b) And the intensity of this UV-Vis spectroscopy grows linearly at certain wavelengths with an increasing of the bilayer number n . The absorptions at 274 nm and 350 nm wavelength characterize the coordination bonds in the $\text{Fe}^{3+}\text{-L}_2\text{EO}_4$ structure.