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Supporting Information for

A Simulation and Experimental Study of Electrochemical pH Control at Gold Interdigitated Microband Arrays

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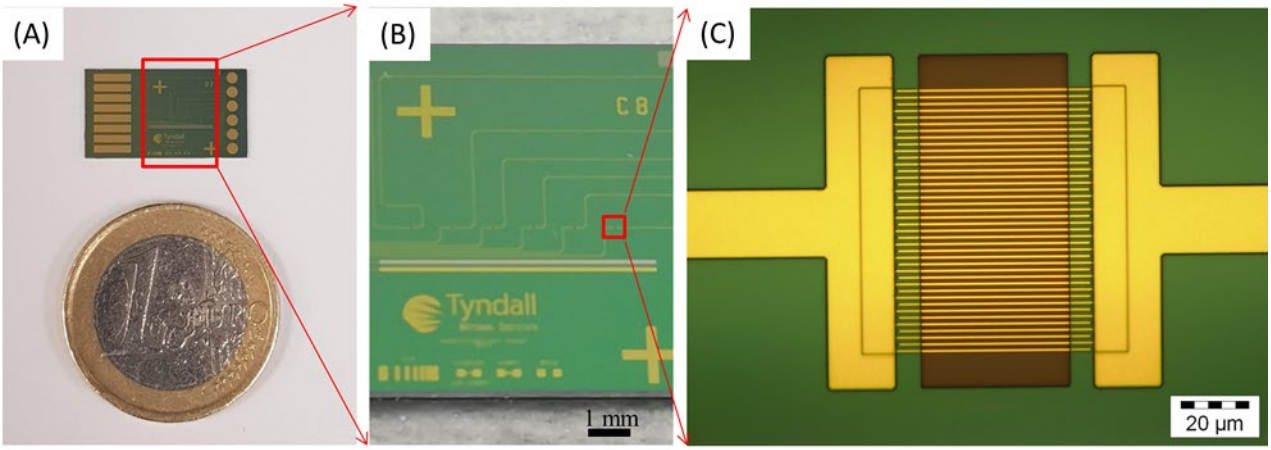

Fig. S1. (A) Image of silicon chip sensor device with euro coin for scale (B) Magnified image of chip showing Pt reference and Au counter electrodes position relative to working electrodes (C) 1 µm array interdigitated microband working electrode passivation window.

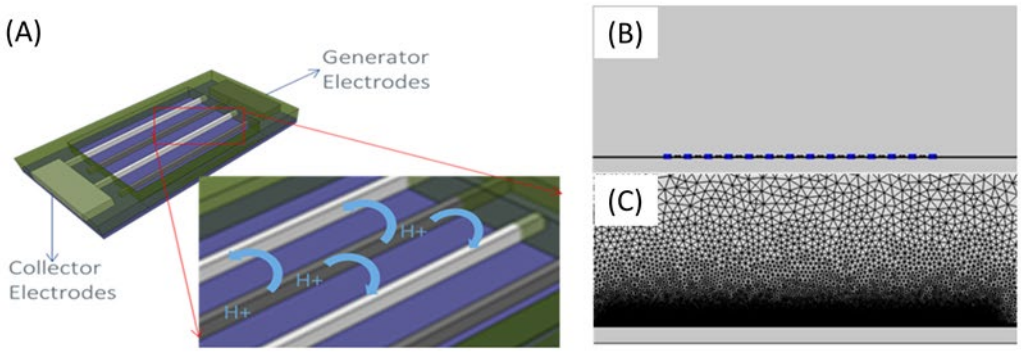

Fig. S2. (A) Schematic of an interdigitated array (B) Image of 2 μm gap array rendered in Comsol (C) Meshing of domain near electrodes in Comsol.

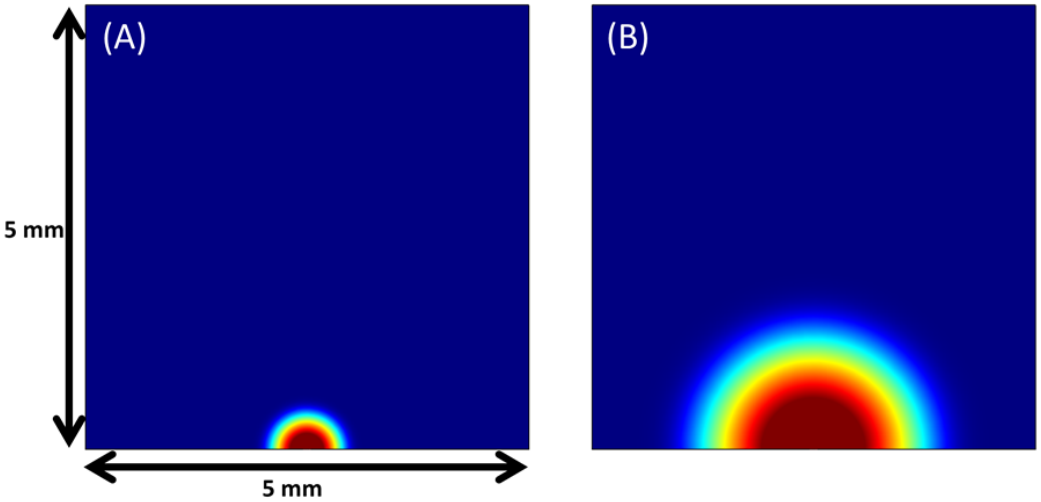

Fig. S3. (A) Simulated pH profile after 1 second with applied current of 100 nA in unbuffered solution(B) Simulated pH profile after 10 seconds with applied current of 100 nA in unbuffered solution.

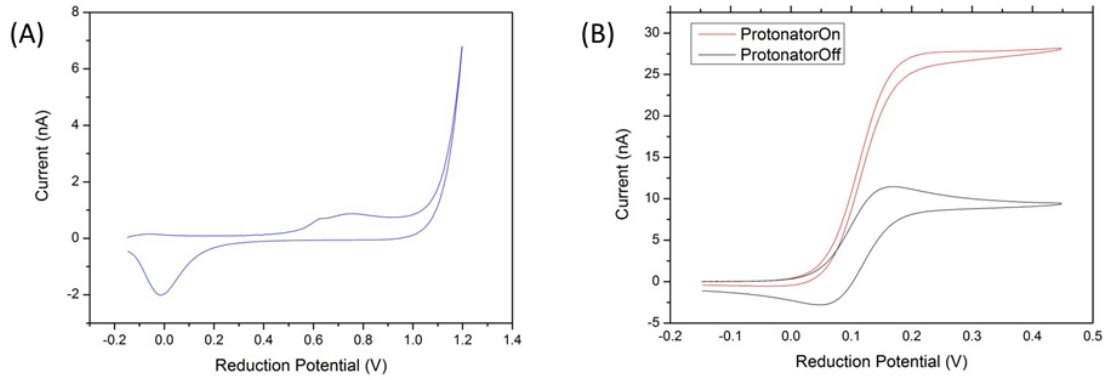

Fig. S4. Example CV at array with gold oxide formation and reduction peak (B) Example CV of FcCOOH with protonator held at -0.15 V (on) or not used (off).

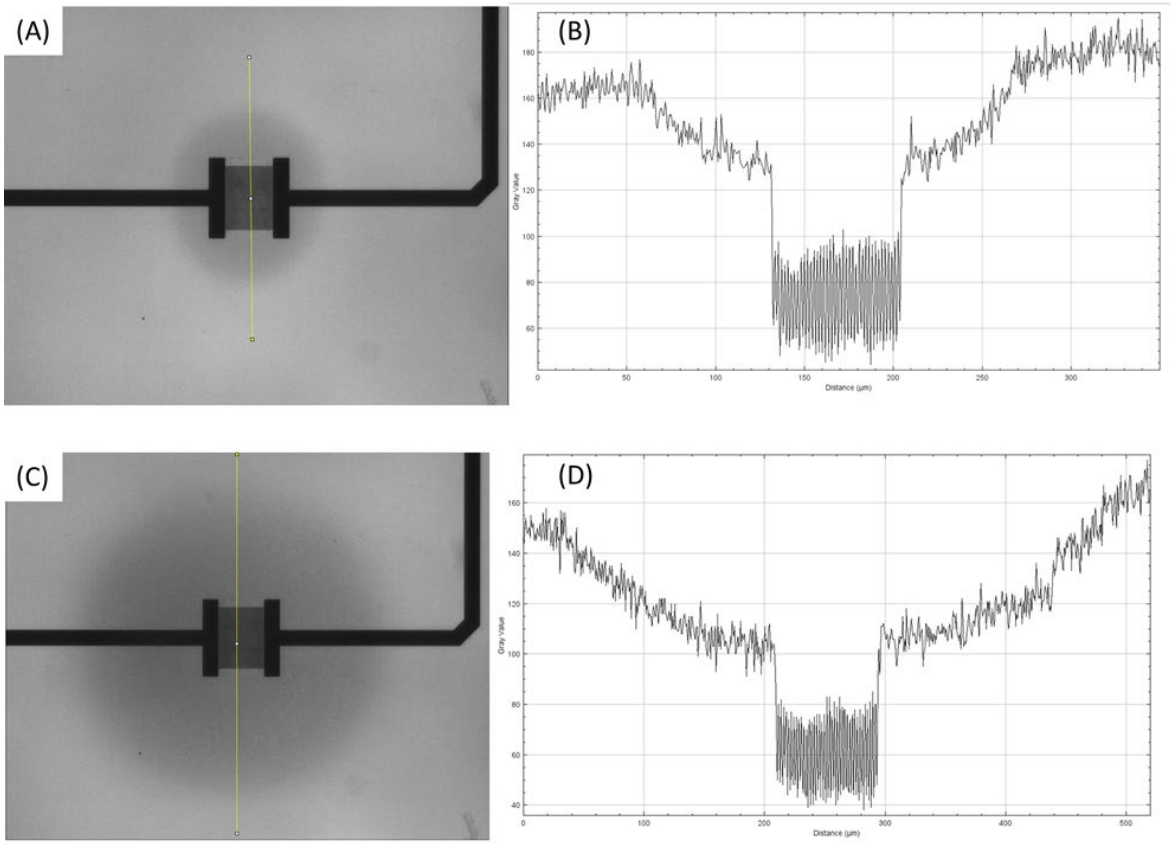

Fig. S5. ImageJ analysis of pH change visualisation (section 4.7). Grayscale image of "1 second" data (A) and profile plot of intensity across electrode versus distance (B). Grayscale image of "10 second" data (C) and profile plot of intensity across electrode versus distance (D).