

## Supplementary Material

### Correlation of Impedance and Effective Electrode Area of Iridium Oxide Neural Electrodes

*Alexander R. Harris<sup>A,D</sup> and Antonio G. Paolini<sup>B,C</sup>*

<sup>A</sup>ARC Centre of Excellence for Electromaterials Science, Intelligent Polymer Research Institute, University of Wollongong, Wollongong, NSW 2522, Australia.

<sup>B</sup>School of Health Science, RMIT University, Bundoora, Vic. 3083, Australia.

<sup>C</sup>School of Psychology and Public Health, La Trobe University, Bundoora, Vic. 3086, Australia.

<sup>D</sup>Corresponding author. Email: alexrharris@gmail.com

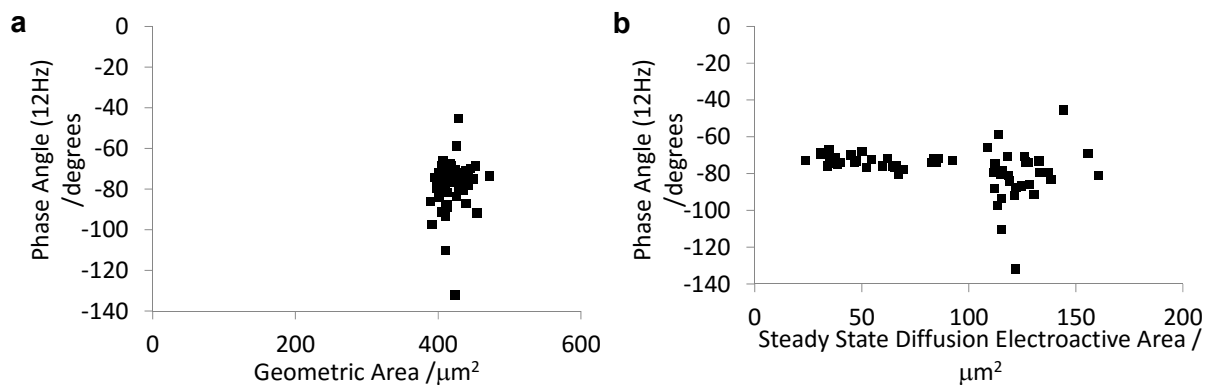


Figure S1: Comparison of phase angle at 12 Hz of iridium electrodes after varying number of activation pulses measured in 0.3 M  $\text{Na}_2\text{HPO}_4$  at 0 V and 10 mV amplitude with electrode area measured (a) optically or (b) by electrochemical reduction of 5 mM  $\text{Ru}(\text{NH}_3)_6^{3+}$  at steady-state diffusion.

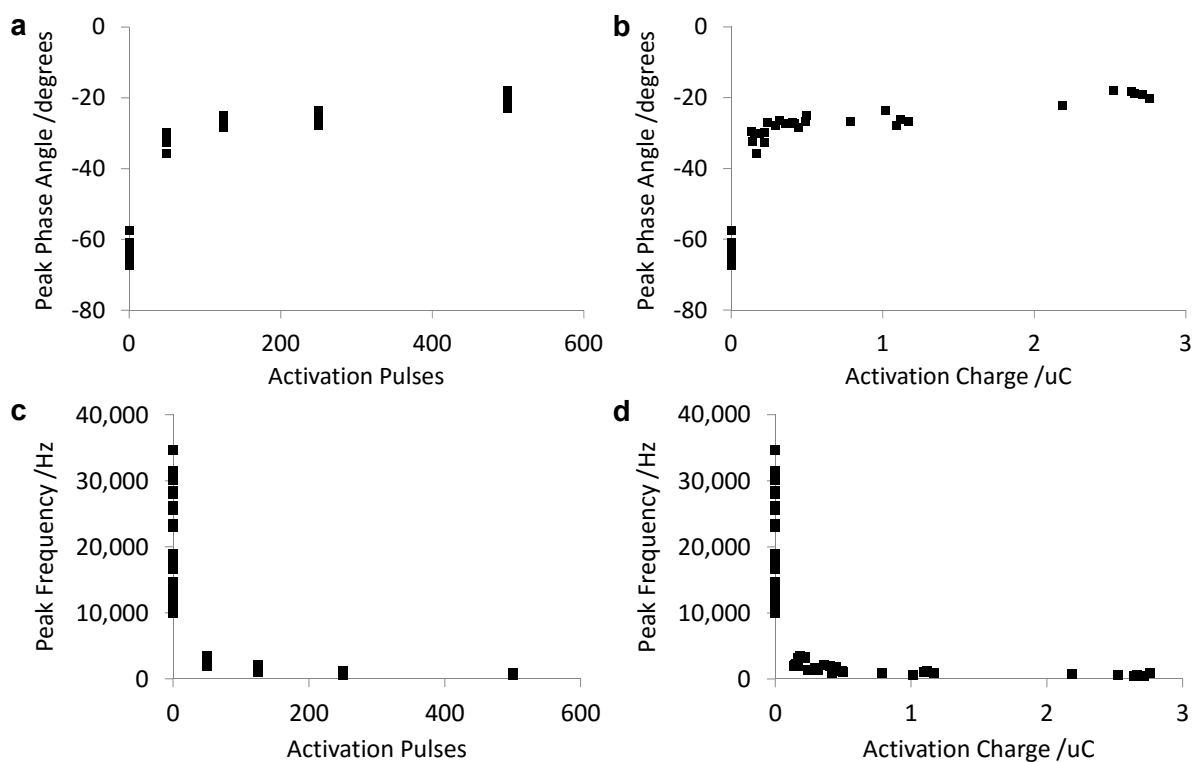


Figure S2: Comparison of minimum peak of the phase angle of iridium electrodes after varying number of activation pulses measured in 0.3 M  $\text{Na}_2\text{HPO}_4$  at 0 V and 10 mV amplitude (a and b) phase angle (c and d) frequency versus, (a and c) number of activation pulses and (b and d) total activation charge.