

## Supporting Information

# Stochastic Detection and Characterisation of Individual Ferrocene Derivative Tagged Graphene Nanoplatelets

Haoyu Wu,<sup>a</sup> Qianqi Lin,<sup>a</sup> Christopher Batchelor-McAuley,<sup>a</sup> Luís Moreira Gonçalves,<sup>b</sup> Carlos F. R. A. C. Lima,<sup>c,d</sup> Richard G. Compton<sup>\*a</sup>

<sup>a</sup> Department of Chemistry, Physical and Theoretical Chemistry Laboratory, University of Oxford,  
South Parks Road, Oxford OX1 3QZ, UK

<sup>b</sup> LAQV-REQUIMTE, Departamento de Química e Bioquímica, Faculdade de Ciências da  
Universidade do Porto, Rua do Campo Alegre, s/n, 4169-007 Porto, Portugal

<sup>c</sup> CIQ, Departamento de Química e Bioquímica, Faculdade de Ciências da Universidade do Porto,  
Rua do Campo Alegre, s/n, 4169-007 Porto, Portugal

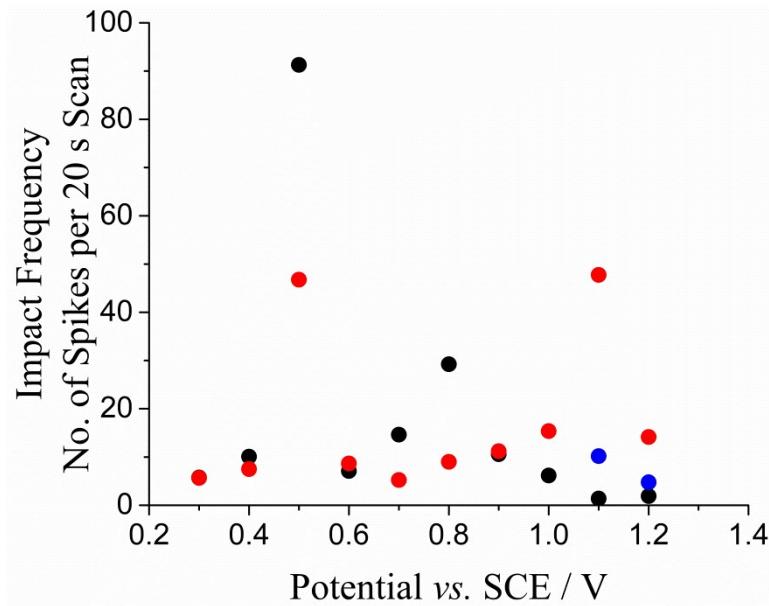
<sup>d</sup> Department of Chemistry & QOPNA, University of Aveiro, Aveiro, Portugal

\*To whom correspondence should be addressed

Email: [richard.compton@chem.ox.ac.uk](mailto:richard.compton@chem.ox.ac.uk)

Phone: +44 (0) 1865 275957

Fax: +44 (0) 1865 275410



**Fig. SI1** Potential variation of the impact frequency: plot of number of spikes per 20 s scan against potential. Black dots: 1-(biphen-4-yl)ferrocene modified GNP. Blue dots: ferrocene ‘modified’ GNP. Red dots: unmodified GNP.

Fig. SI1 shows the number of spikes per 20 s chronoamperometry scan when different potentials are applied to the electrode. The impact frequency exhibits a random distribution. This phenomenon is consistent with the fact that the particle diffusion is independent of the applied potential to the electrode or modification of GNP.