Achieving 100% Utilization of Reduced Graphene Oxide by Layer-by-layer Assembly:

Insight into the Capacitance of Chemically-derived Graphene in Monolayer State

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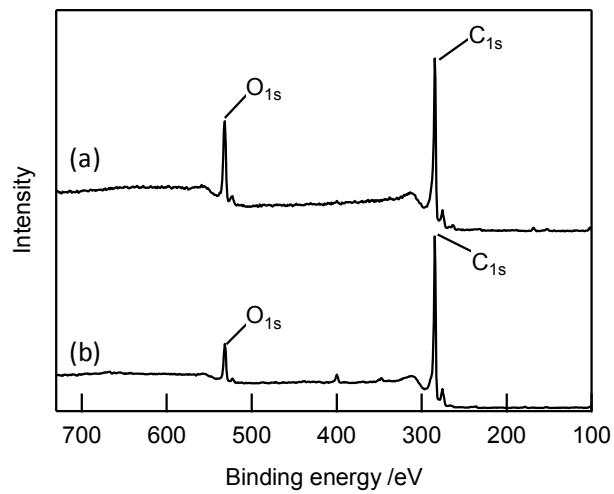[*]Corresponding author: wsugi@shinshu-u.ac.jp

Figure S1. X-ray photoelectron spectra of (a) H_2- and (b) N_2H_4-reduced rGO powders. The O/C atomic ratio for H_2- and N_2H_4-reduced sample was 0.21 and 0.10, respectively.
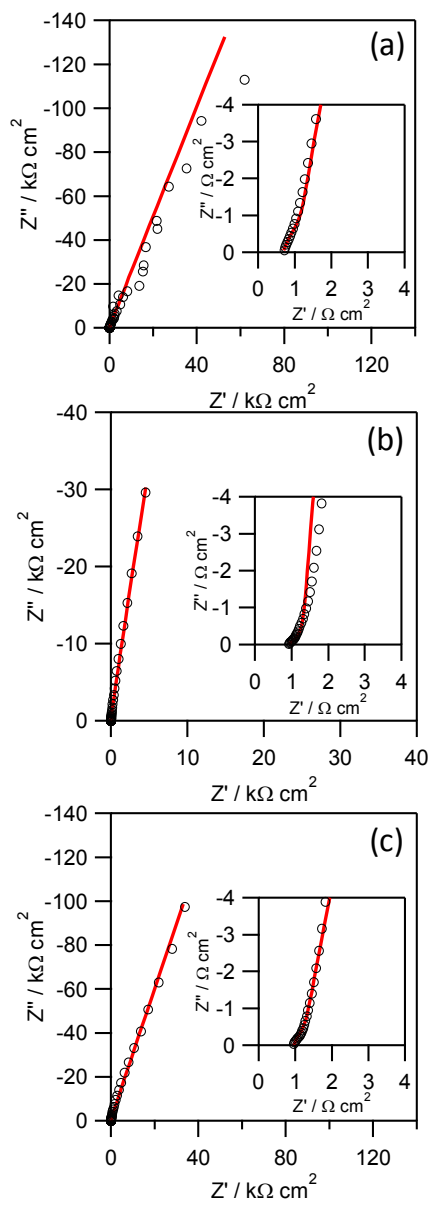
Figure S2. Simulation results (red line) and measured data (circles) for (PDDA/rGO)$_5$-H$_2$ in H$_2$SO$_4$ at (a) 0.2 V, (b) 0.6 V, (c) 1.0 V vs. RHE.
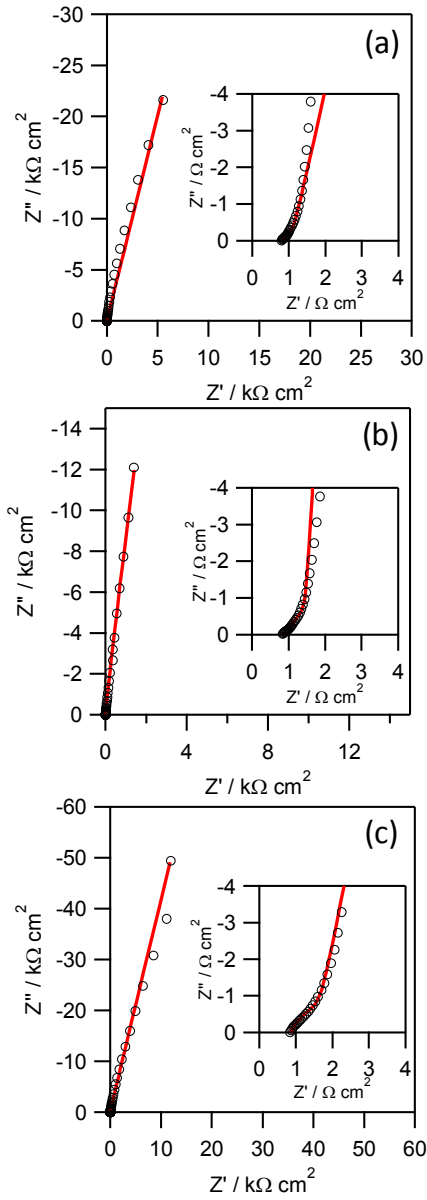
Figure S3. Simulation results (red line) and measured data (circles) for (PDDA/rGO)$_{10}$-H$_2$ in

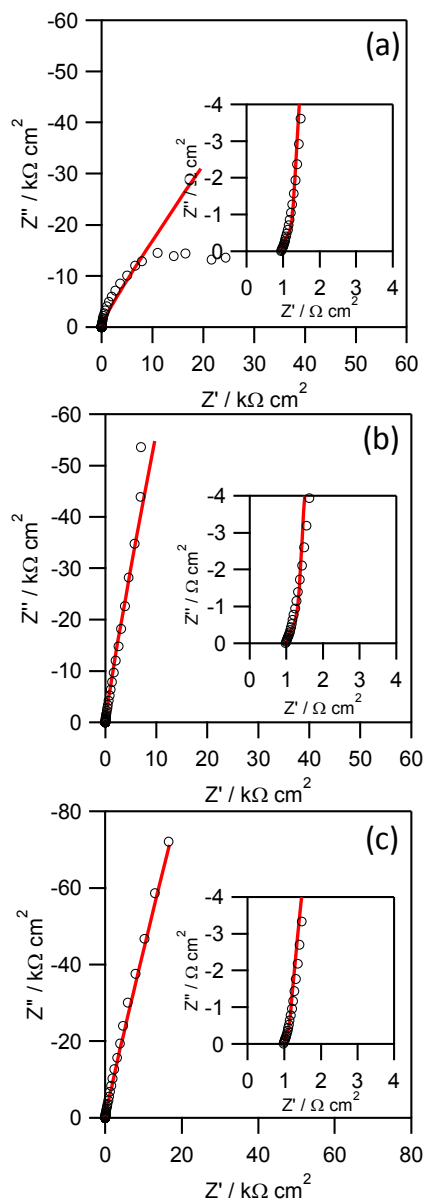H$_2$SO$_4$ at (a) 0.2 V, (b) 0.6 V, (c) 1.0 V vs. RHE.

Figure S4. Simulation results (red line) and measured data (circles) for (PDDA/rGO)$_5$-N$_2$H$_4$ in H$_2$SO$_4$ at (a) 0.2 V, (b) 0.6 V, (c) 1.0 V vs. RHE.
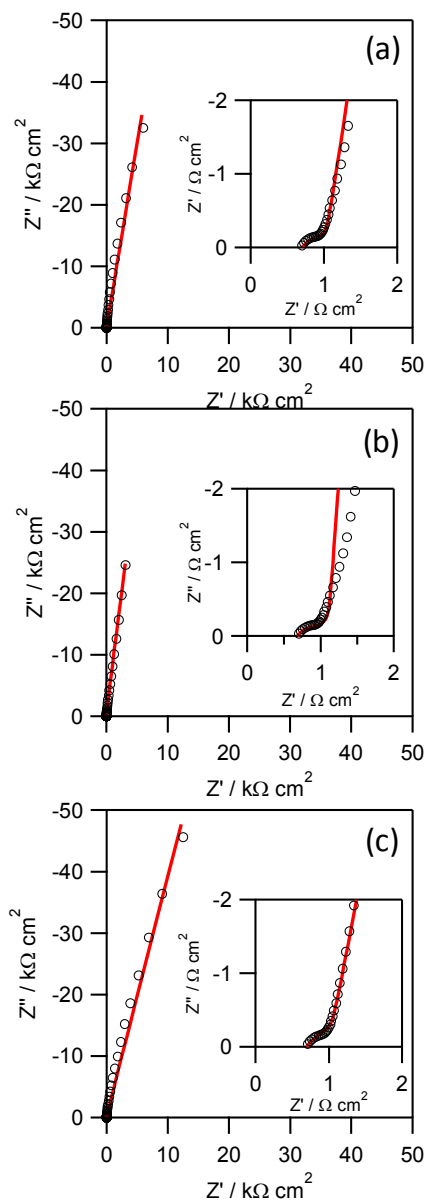
Figure S5. Simulation results (red line) and measured data (circles) for (PDDA/rGO)$_{10}$-N$_2$H$_4$ in H$_2$SO$_4$ at (a) 0.2 V, (b) 0.6 V, (c) 1.0 V vs. RHE.
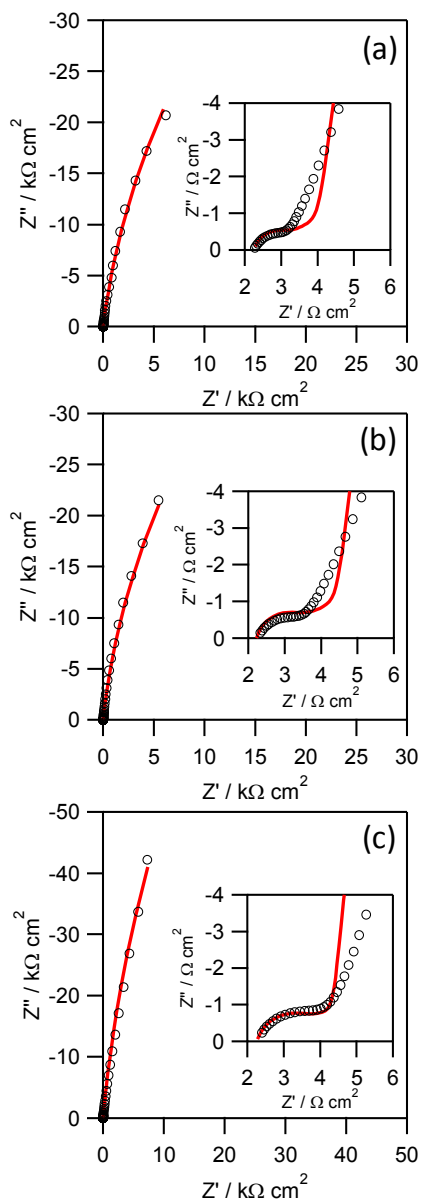
Figure S6. Simulation results (red line) and measured data (circles) for (PDDA/rGO)$_{10}$-H$_2$ in

Na$_2$SO$_4$ at (a) 0.2 V, (b) 0.6 V, (c) 1.0 V vs. RHE.

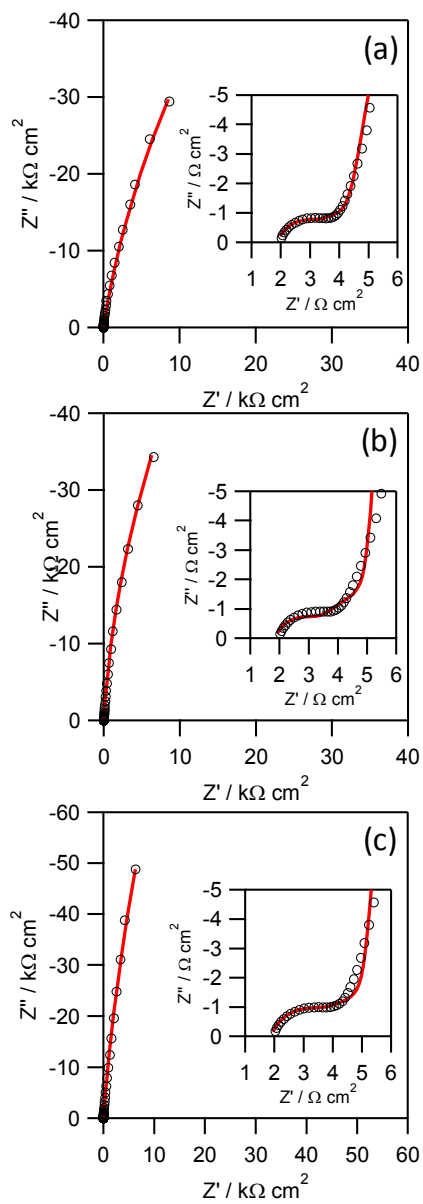Figure S7. Simulation results (red line) and measured data (circles) for (PDDA/rGO)$_{10}$-N$_2$H$_4$ in Na$_2$SO$_4$ at (a) 0.2 V, (b) 0.6 V, (c) 1.0 V vs. RHE.