Electronic Supplementary Information

Surface modification of carbon and metal electrodes with bistable molecular redox switches by click and amide coupling

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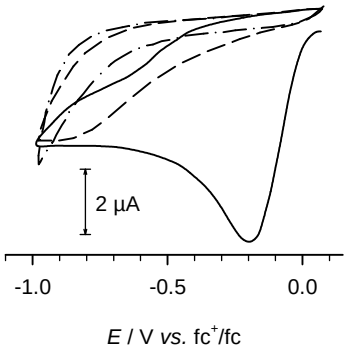

Figure S-1. Cyclic voltammograms (0.2 Vs^{-1}) of NO_2-Ph-N_2^+ (0.5 mM in acetonitrile with 0.1 M $TBAPF_6$) on Pt electrode (diam.: 2 mm), scans 1 (–), 2 (---) and 3 (-•-).

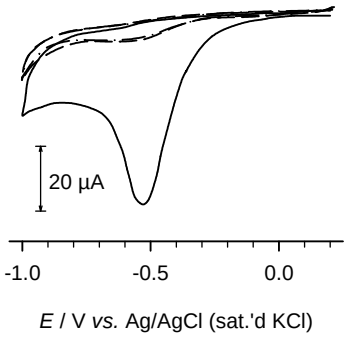

Figure S-2. Cyclic voltammograms (0.2 Vs^{-1}) of a NO_2-Ph-modified glassy carbon electrode (diam.: 3 mm) in 0.25 M H_2SO_4, scans 1 (–), 2 (---) and 3 (-•-).

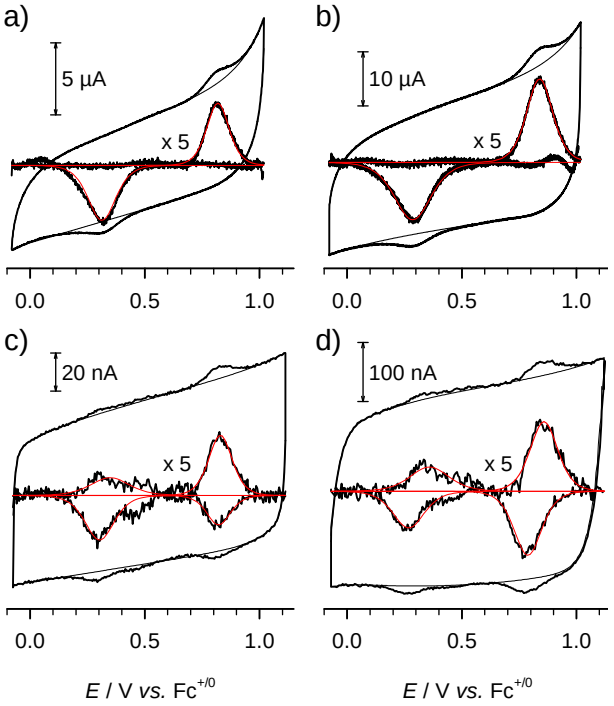

Figure S-3. Cyclic voltammograms of Pt electrodes (electrode diam.: 2 mm (a), 25 µm (b-d)) modified by grafting of N_2^+-Ph-NO_2, -NO_2 to -NH_2 reduction, and subsequent amide coupling of complex **2**. Capacitive background (thin lines) and faradaic peaks (red) fitted to background subtracted current. Scan rate: 5 Vs^{-1} (a), 20 Vs^{-1} (b), 500 Vs^{-1} (c), 2 000 Vs^{-1} (d).

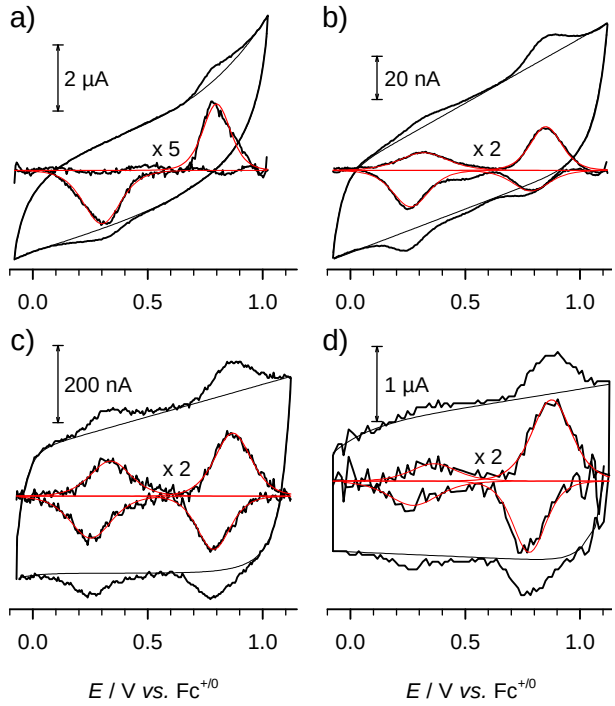

Figure S-4. Cyclic voltammograms of Pt electrodes (electrode diam.: 2 mm (a, b), 25 µm (c-d)) modified by grafting of N_2^+-Ph-COOH and subsequent amide coupling of complex **1**. Capacitive background (thin lines) and faradaic peaks (red) fitted to background subtracted current. Scan rate: 2 Vs^{-1} (a), 200 Vs^{-1} (b), 2 000 Vs^{-1} (c), 10 000 Vs^{-1} (d).

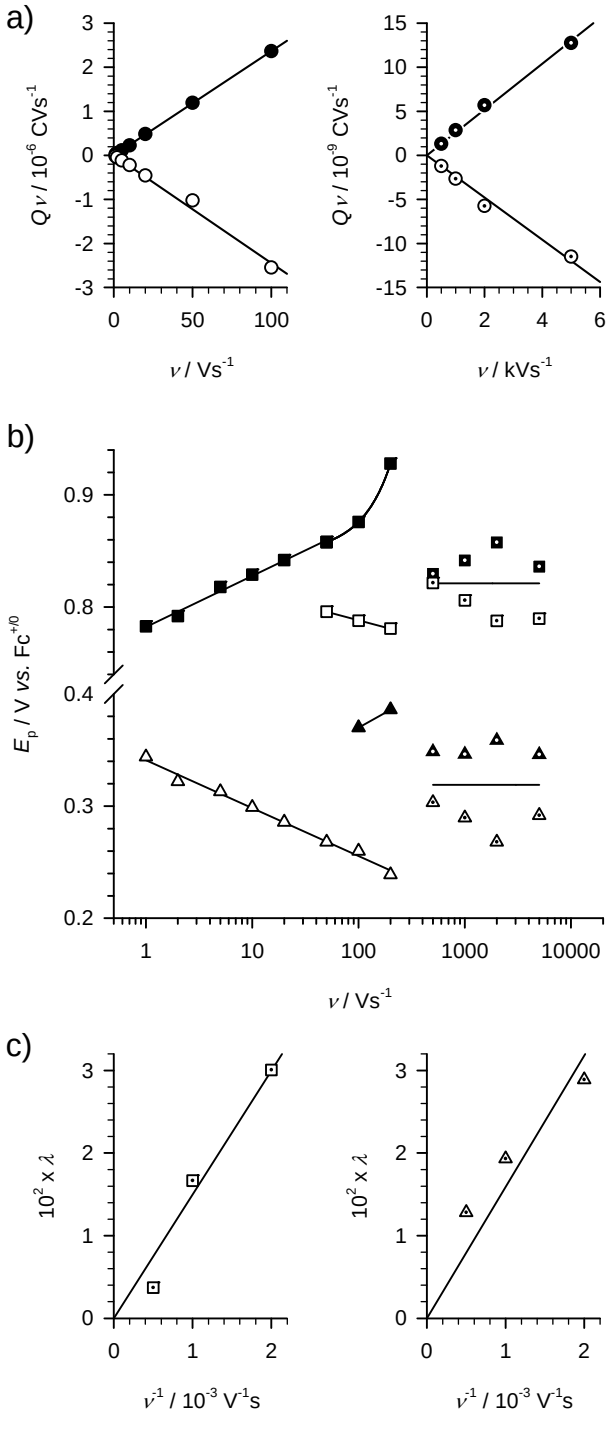

Figure S-5. Scan rate dependent CV parameters of Pt electrodes (2 mm diam. and 25 µm diam. (dotted symbols)) modified by grafting of N_2^+-Ph-NO_2, -NO_2 to -NH_2 reduction, and subsequent amide coupling of complex **2**. (a) Total anodic (●) and cathodic (○) peak. (b) Peak potentials of the $Ru^{III/II}(N_6)$ (■, □) and $Ru^{III/II}(N_5O)$ (▲, △) couples. (c). Kinetic parameters obtained from reverse/forward peak current ratios $i_{pc}(N_6)$ /$i_{pa}(N_6)$ (□) and $i_{pa}(N_5O)$ /$i_{pc}(N_5O)$ (△).

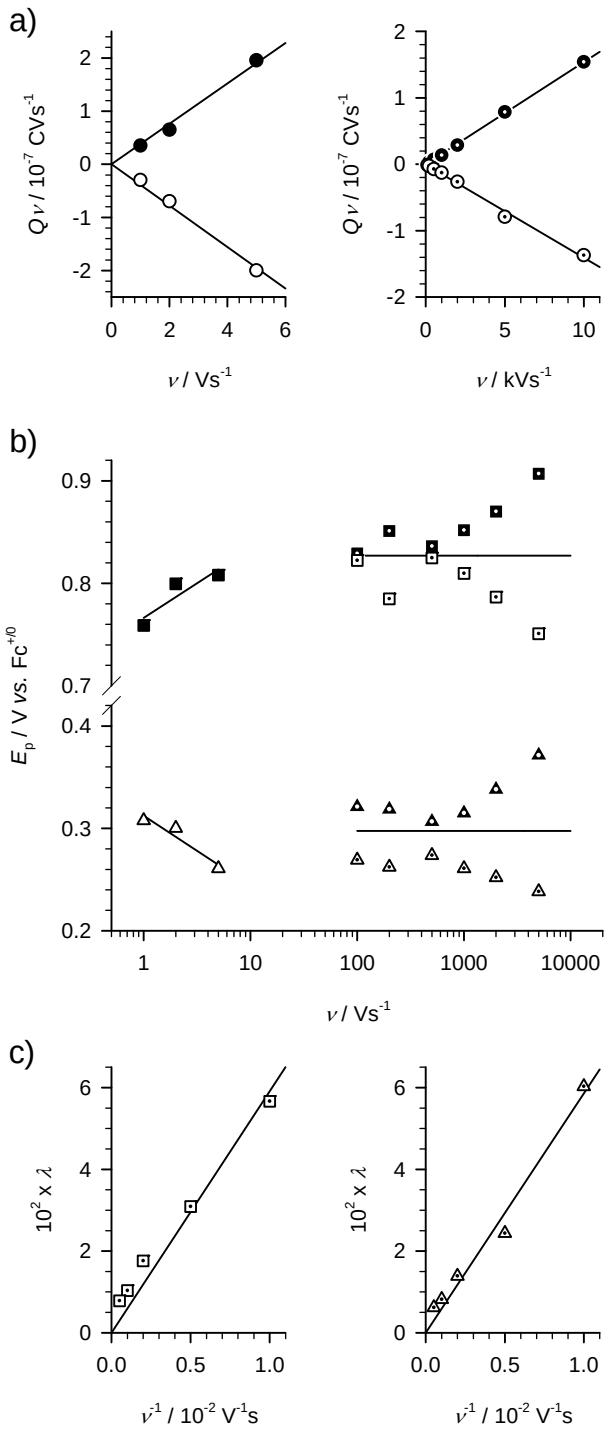

Figure S-6. Scan rate dependent CV parameters of Pt electrodes (2 mm diam. and 25 µm diam. (dotted symbols)) modified by grafting of N_2^+-Ph-COOH and subsequent amide coupling of complex **1**. (a) Total anodic (●) and cathodic (○) peak. (b) Peak potentials of the $Ru^{III/II}(N_6)$ (■, □) and $Ru^{III/II}(N_5O)$ (▲, △) couples. (c). Kinetic parameters obtained from reverse/forward peak current ratios $i_{pc}(N_6)$ /$i_{pa}(N_6)$ (□) and $i_{pa}(N_5O)$ /$i_{pc}(N_5O)$ (△).