

Supplementary Figures & Tables

Effective Electrocatalytic Methanol Oxidation of Pd-based Metallic Glass Nanofilms

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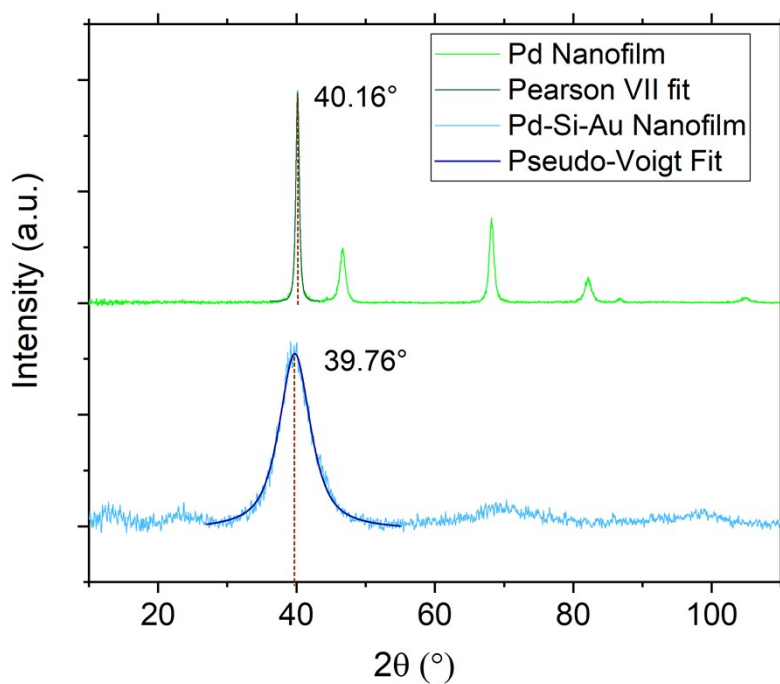


Fig. S1 XRD results of PdAuSi MG film vs. Pd NF. The main peak positions are found by Pearson and pseudo-Voigt fitting for the Pd crystal and Pd-Au-Si MG NFs, respectively.

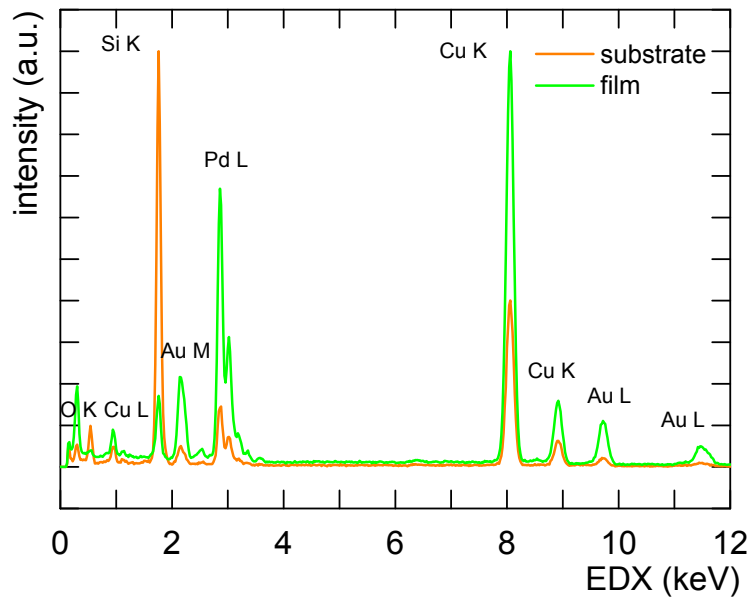


Fig. S2 EDX spectra of PdAuSi MG NF (green) and the base substrate (Si/SiO₂). Cu K and Cu L peaks are from the standard TEM grid made from Cu.

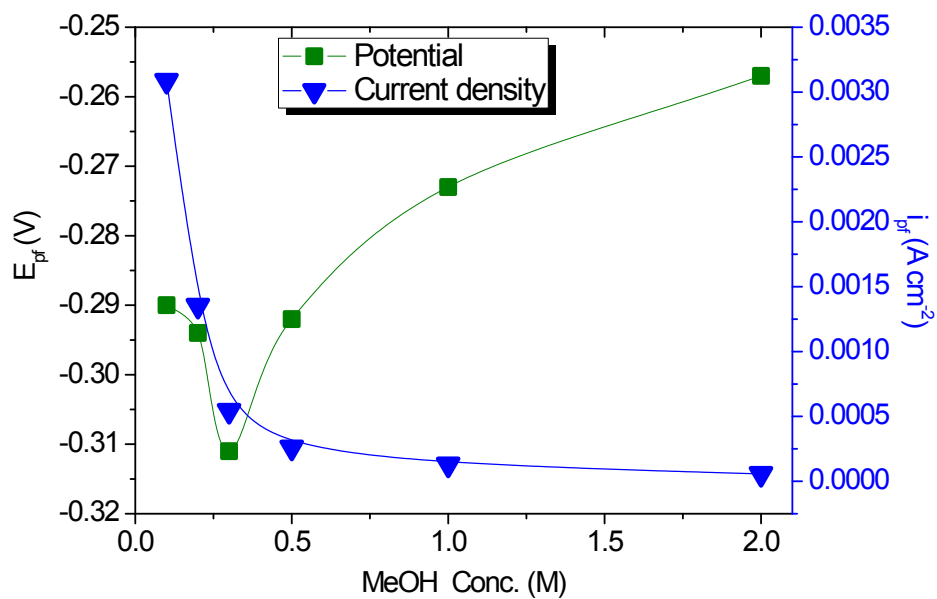


Fig. S3 E_{pf} and i_{pf} vs. MeOH concentration for the deposited Pd-Au-Si MG NFs.

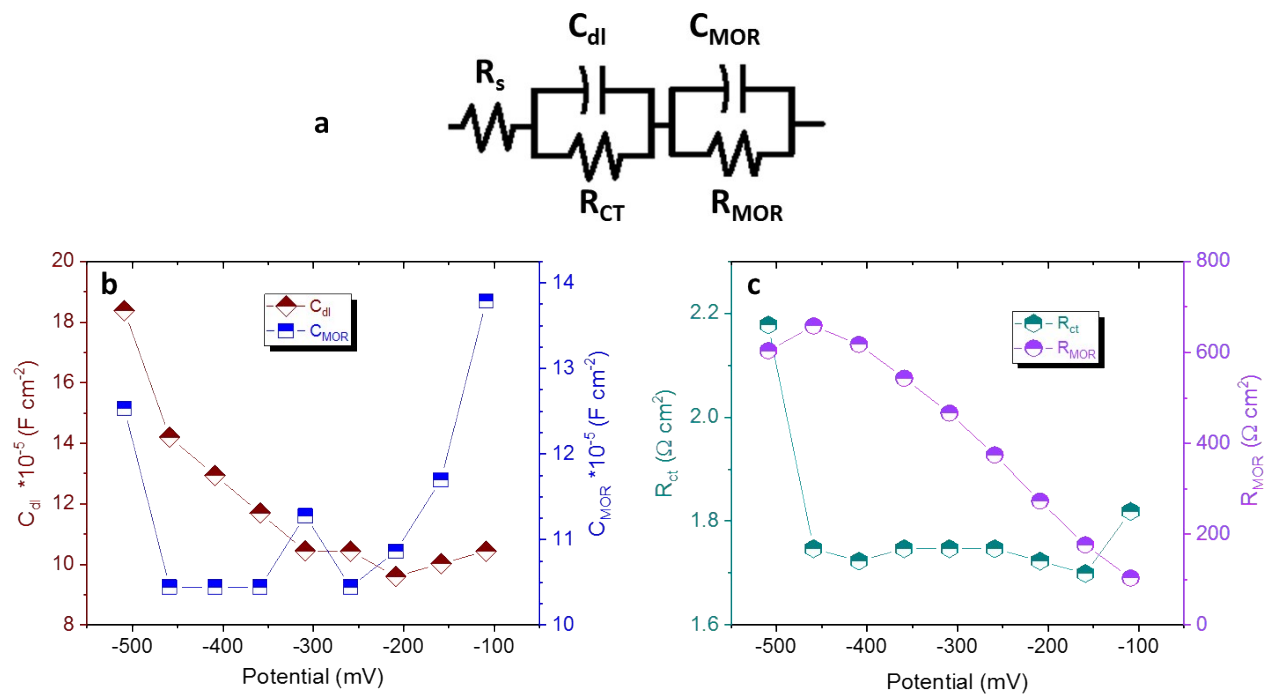


Fig. S4. ECM of the EIS data given in Figure 2. (a) R(CR)(CR) Randles circuit model is used. (b) C_{dl} and C_{MOR} vs. potential. (c) R_{ct} and R_{MOR} vs. potential.

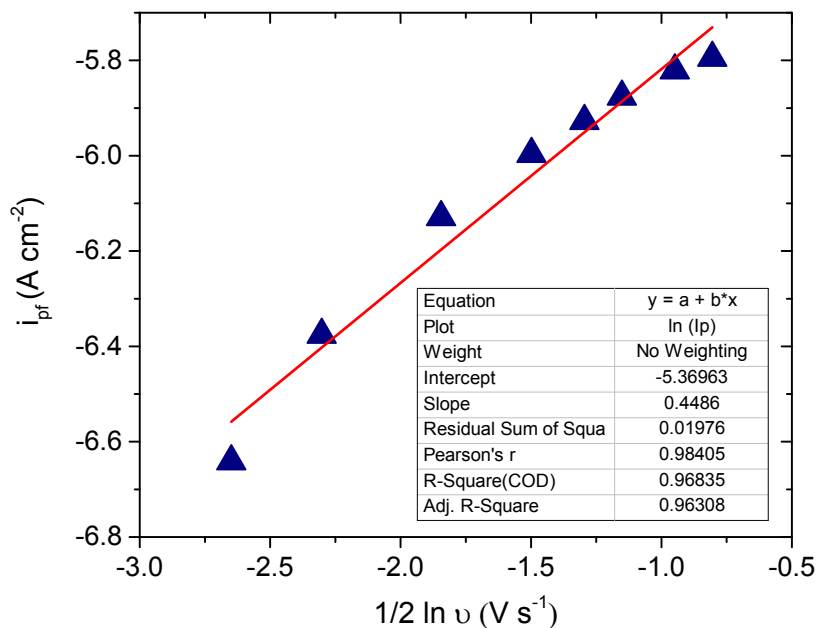


Fig. S5. E_{pf} vs. $\frac{1}{2} \ln v$ for the deposited Pd-Au-Si MG NFs. The inset shows the results of the linear fit.

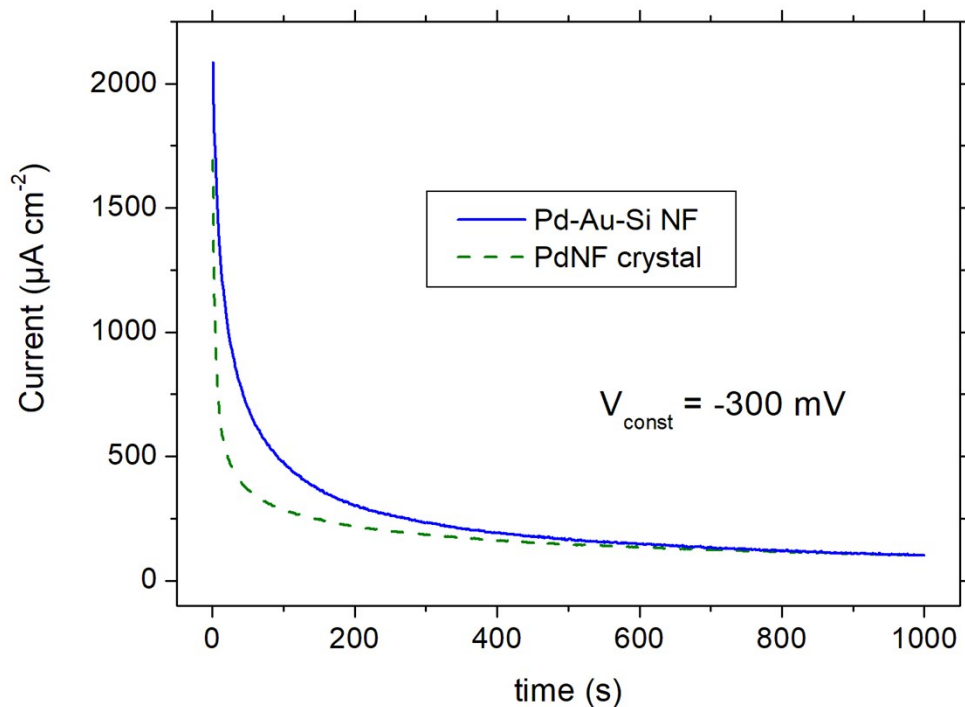


Fig. S6 Chronoamperometric study showing the stability of the Pd-Au-Si MG NF in 1M KOH + 1 M MeOH electrolyte at a constant voltage of -300 mV.

Table S1. ECM results at different potentials. R_s : solution resistance, C_{dl} : double layer capacitance, R_{ct} : charge-transfer resistance, C_{MOR} : capacitance due to MeOH – MG interactions, R_{MOR} : resistance due to MeOH – MG interactions, χ^2 : Chi-squared for the error of the Randles circuit at each potential.

Potential (mV)	R_s (Ω cm ²)	$C_{dl} \times 10^{-5}$ (F cm ⁻²)	R_{ct} (Ω cm ²)	$C_{MOR} \times 10^{-5}$ (F cm ⁻²)	R_{MOR} (Ω cm ²)	χ^2
-509	7.7	4.4	2.2	3.0	606	2.2×10^{-3}
-459	7.5	3.4	1.8	2.5	660	7.9×10^{-4}
-409	7.5	3.1	1.7	2.5	619	9.3×10^{-4}
-359	7.6	2.8	1.8	2.5	545	8.4×10^{-4}
-309	7.7	2.5	1.8	2.7	468	9.3×10^{-4}
-259	7.7	2.5	1.8	2.5	376	6.6×10^{-4}
-209	7.7	2.3	1.7	2.6	273	6.4×10^{-4}
-159	7.7	2.4	1.7	2.8	177	6.6×10^{-4}
-109	7.6	2.5	1.8	3.3	104	9.0×10^{-4}