

Supplementary Information

Table S1. Fitting results of the Pt 4f XPS spectra show in Figure 3c of the PMo₁₂-Pt/rGO composites.

| Items | Pt (0) | Pt (II) | | Pt (IV) | |
|-------------------|--------|---------|-------|---------|-------|
| B.E (eV) | 71.2 | 74.6 | 72.1 | 75.9 | 74.4 |
| Area (10^3) | 10.10 | 9.78 | 4.70 | 3.69 | 1.32 |
| Relative area (%) | 62.92 | | 26.57 | | 10.51 |

Table S2. Results of the I_f at 1st, I_f at 100th and attenuation amplitude (%) of the different modified electrode.

| Sample | I_f at 1st ($\text{mA}\cdot\text{cm}^{-2} \text{mg}^{-1}$ Pt) | I_f at 100th ($\text{mA}\cdot\text{cm}^{-2} \text{mg}^{-1}$ Pt) | Attenuation Amplitude (%) |
|-------------------------------|--|--|---------------------------|
| Pt/GCE | 165.41 | 115.74 | 30.03 |
| Pt/rGO/GCE | 177.25 | 157.17 | 11.33 |
| PMo ₁₂ -Pt/rGO/GCE | 282.24 | 262.52 | 6.99 |

Table S3. The ECSA of different modified electrodes.

| Sample | Pt/mg | Pt/cm ² | ECSA ($\text{m}^2\cdot\text{g}^{-1}$ Pt) |
|-------------------------------|--------|--------------------|---|
| Pt/GCE | 0.0051 | 0.66 | 12.94 |
| Pt/rGO/GCE | 0.0082 | 1.42 | 17.32 |
| PMo ₁₂ -Pt/rGO/GCE | 0.0076 | 1.59 | 20.92 |

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