

# Supporting Information

for

## **Comparing postdeposition reactions of electrons and radicals with Pt nanostructures created by focused electron beam induced deposition**

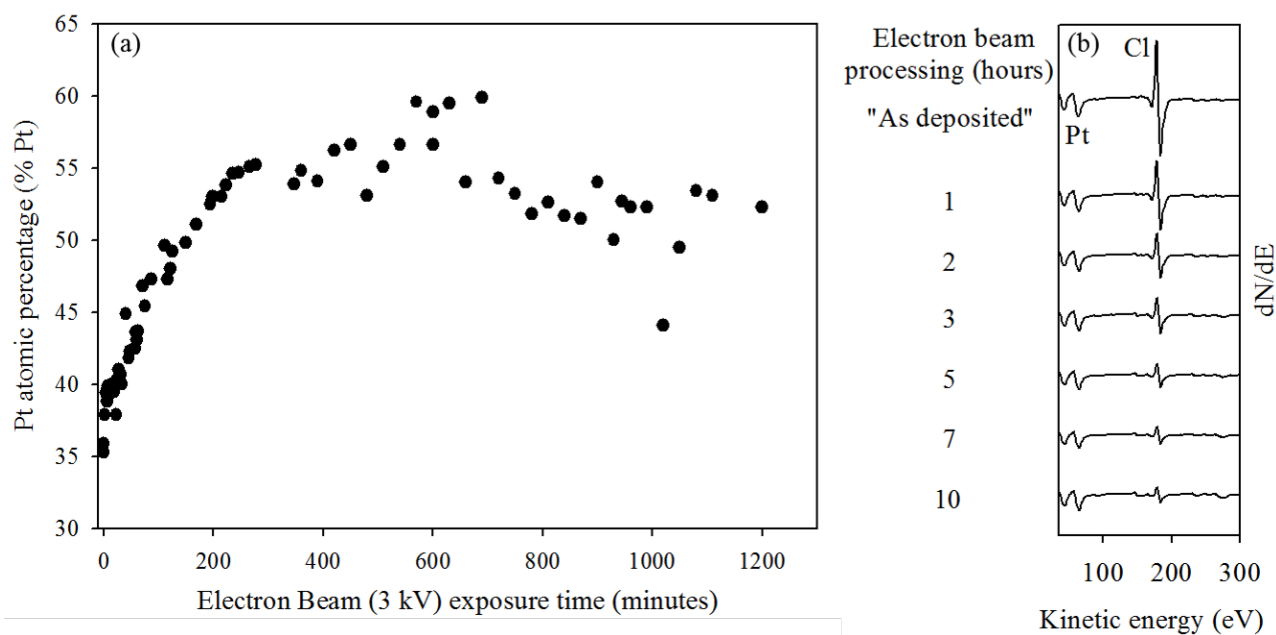
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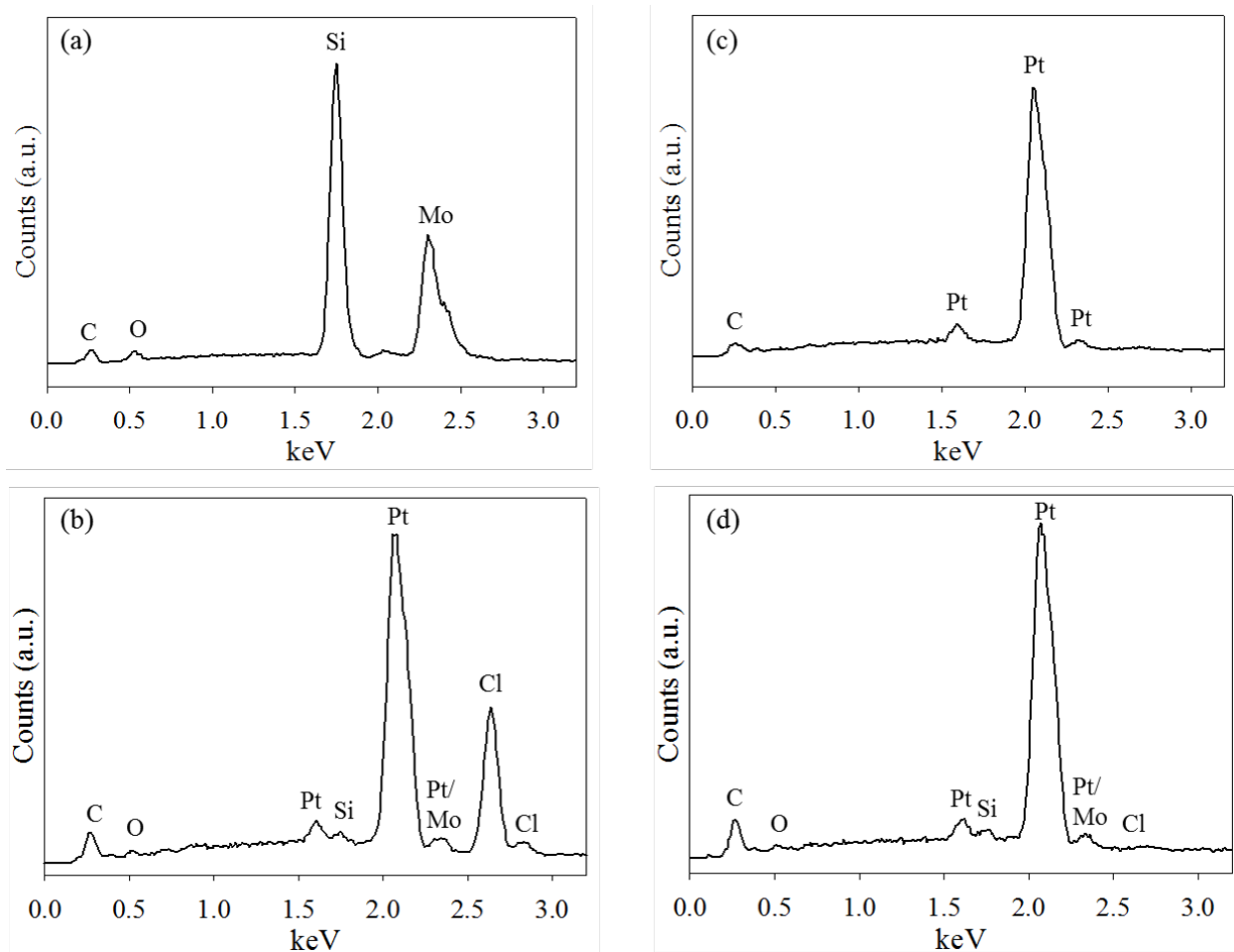
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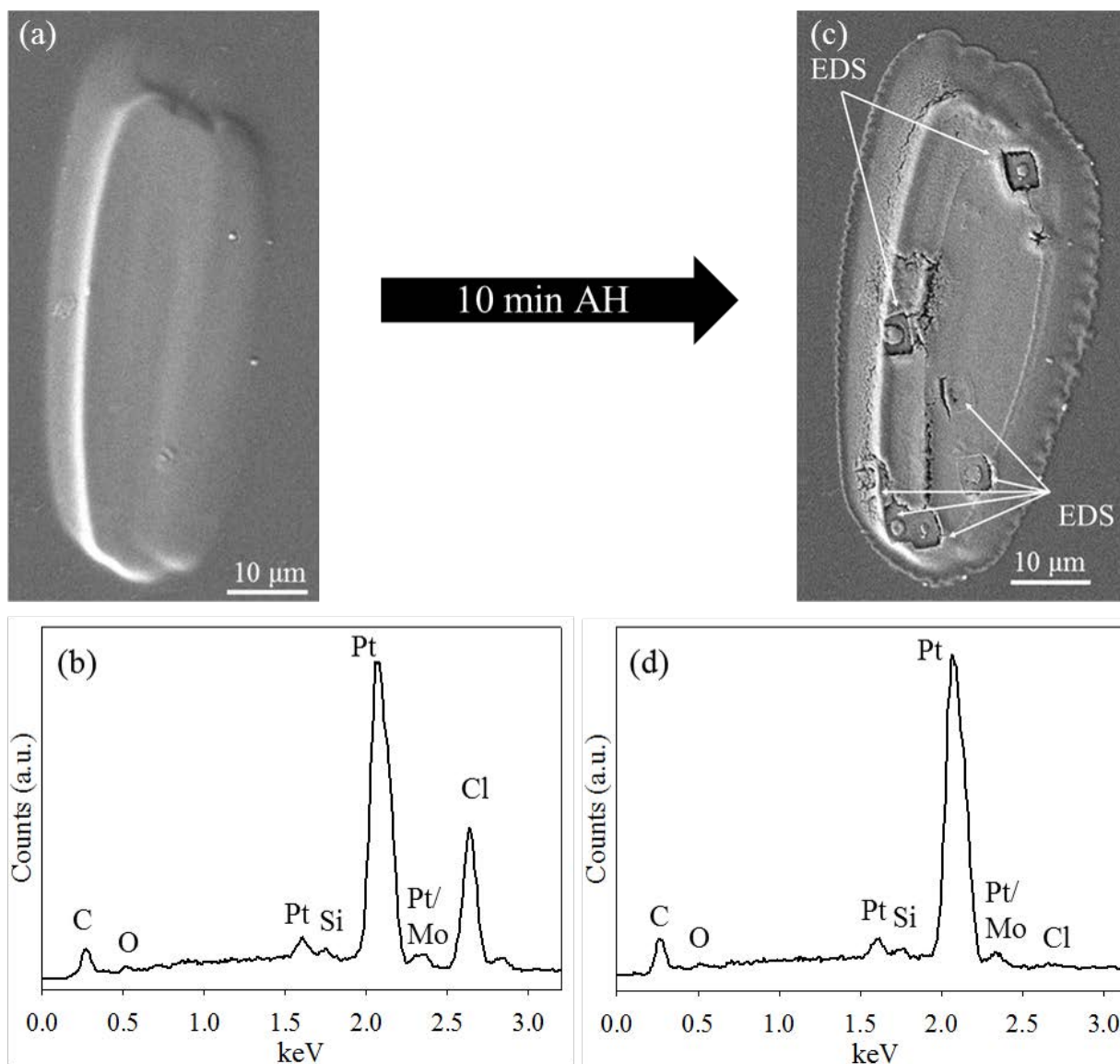
## **Additional Experimental Information**



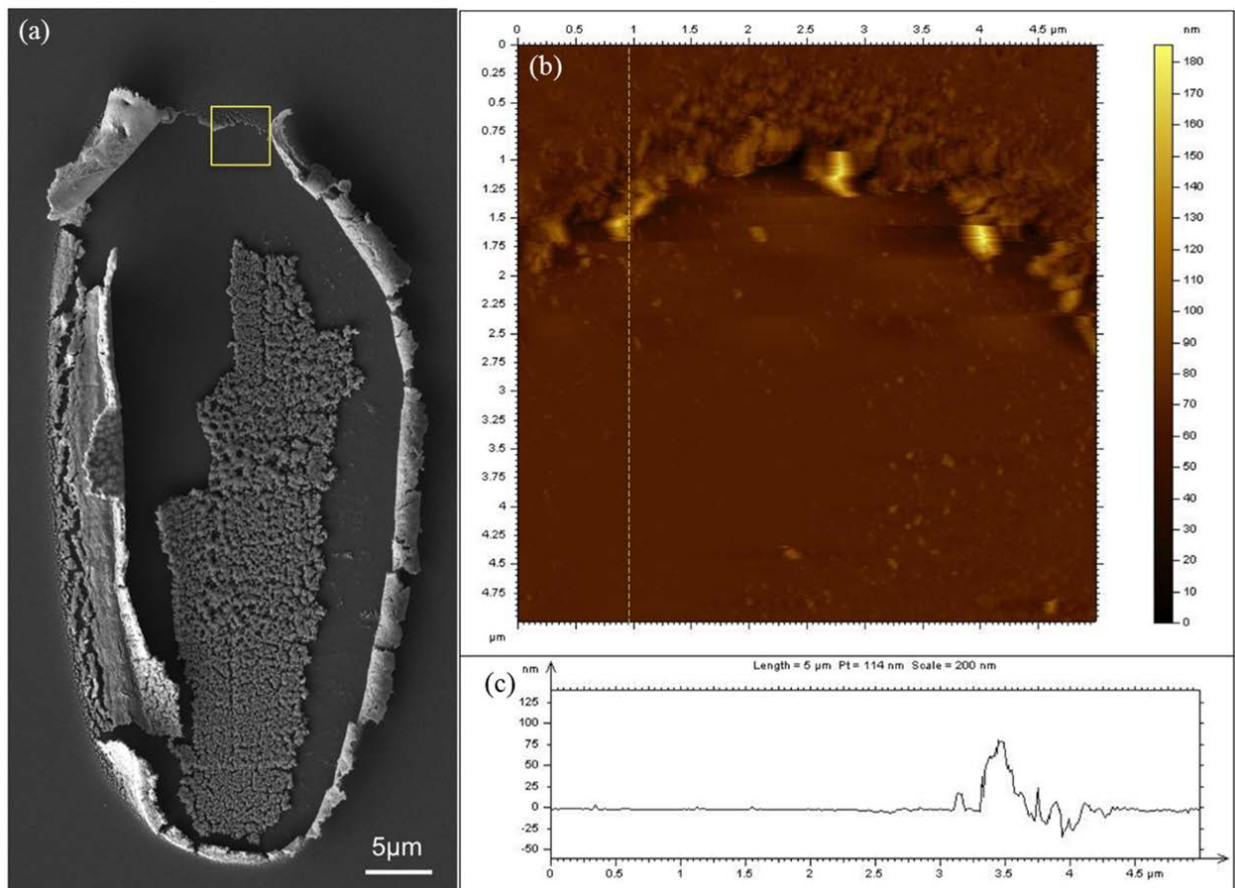
**Figure S1:** (a) Pt atomic percentage (% Pt) for the  $\text{PtCl}_2$  deposit shown in Figure 1, plotted as a function of electron beam irradiation. (b) Evolution of Auger spectra for a thinner deposit (5.25 hours deposition compared with 22 hours deposition) created from  $\text{cis-Pt}(\text{CO})_2\text{Cl}_2$  exposed to electron beam irradiation.



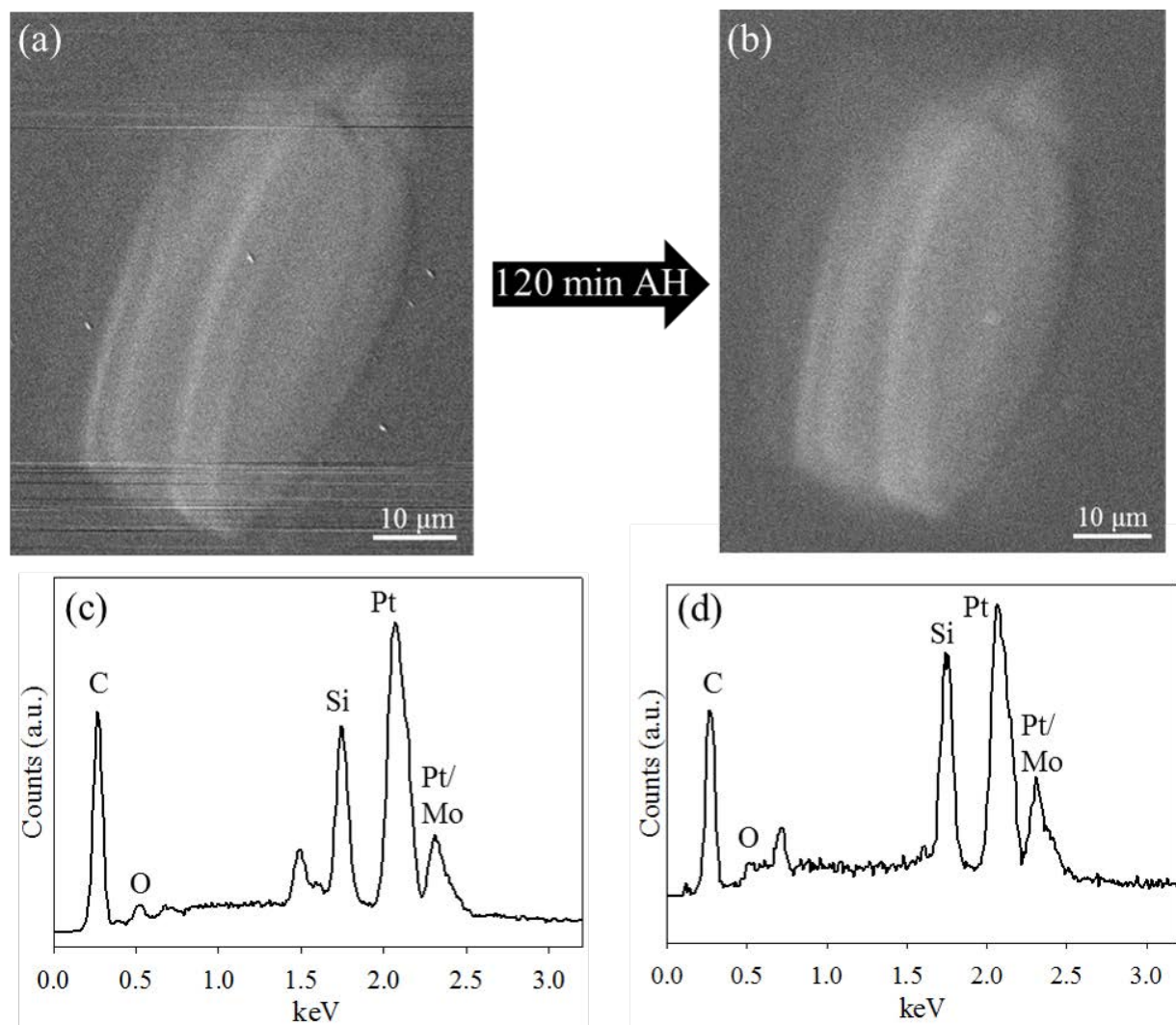
**Figure S2:** Reference EDS data are shown for (a) Ru coated Si/Mo multi-layer mirror substrate, (b) an as-deposited  $\text{PtCl}_2$  deposit, (c) reference pure Pt foil and (d) a purified  $\text{PtCl}_2$  deposit after the majority of Cl has been removed by atomic hydrogen processing.



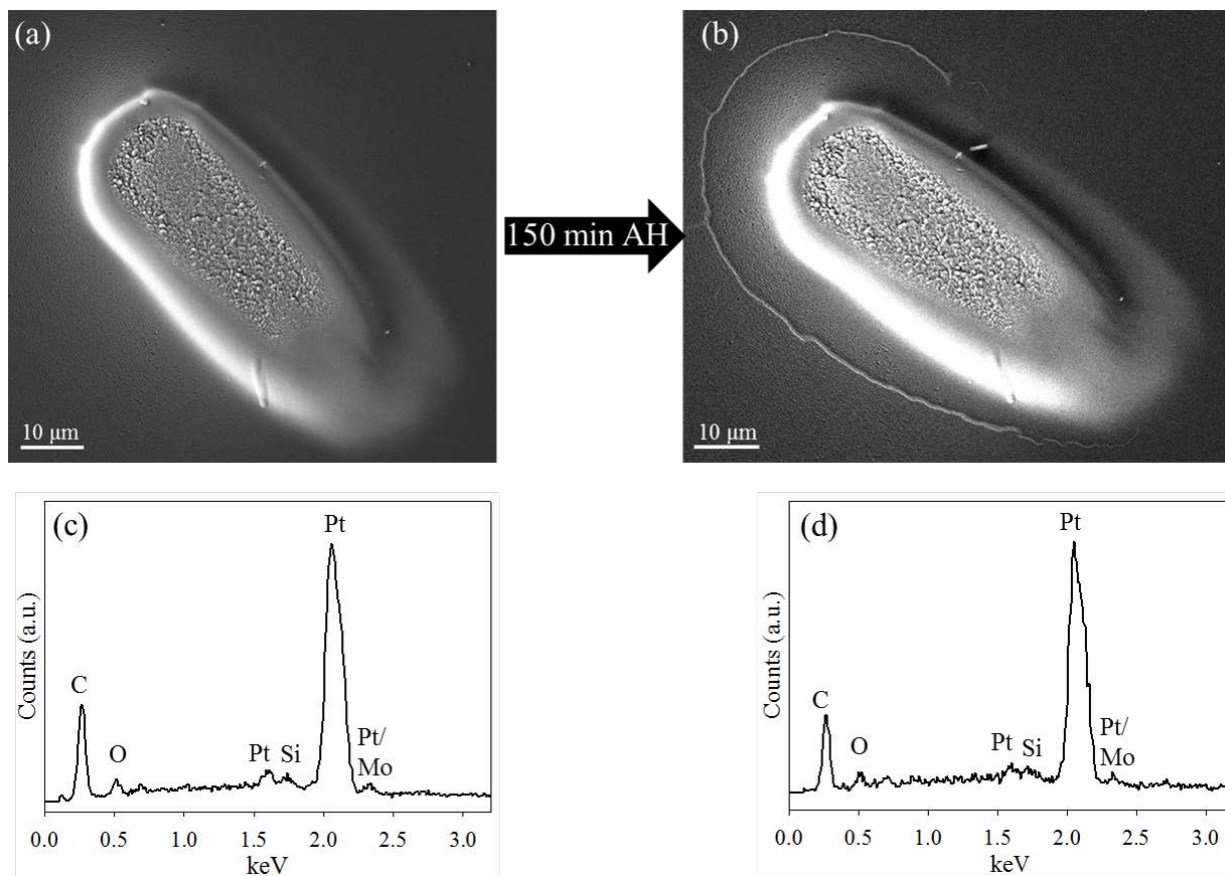
**Figure S3:** (a) SEM image of a deposit created from *cis*-Pt(CO)<sub>2</sub>Cl<sub>2</sub>, and (c) after exposure to 10 minutes of atomic hydrogen treatment at  $P_{\text{H}_2} \sim 1$  Torr ( $6.0 \times 10^8$  L). The EDS spectra for this deposit before and after AH exposure are shown in (b and (d); areas where the deposit was exposed to EDS analysis prior to AH exposure are marked with arrows in (c).



**Figure S4:** (a) Composite SEM image at higher magnification of PtCl<sub>2</sub> deposit shown in Figure 4. After 4 hours of atomic hydrogen treatment ( $P_{H_2} \sim 1$  Torr,  $7.2 \times 10^9$  L), significant morphological changes occurred. AFM height profile data from inside to outside within the yellow square was determined to be 100 nm as shown in (b) the  $5 \mu\text{m}^2$  AFM topography image and in (c) profile extraction across  $x = 0.9 \mu\text{m}$ .

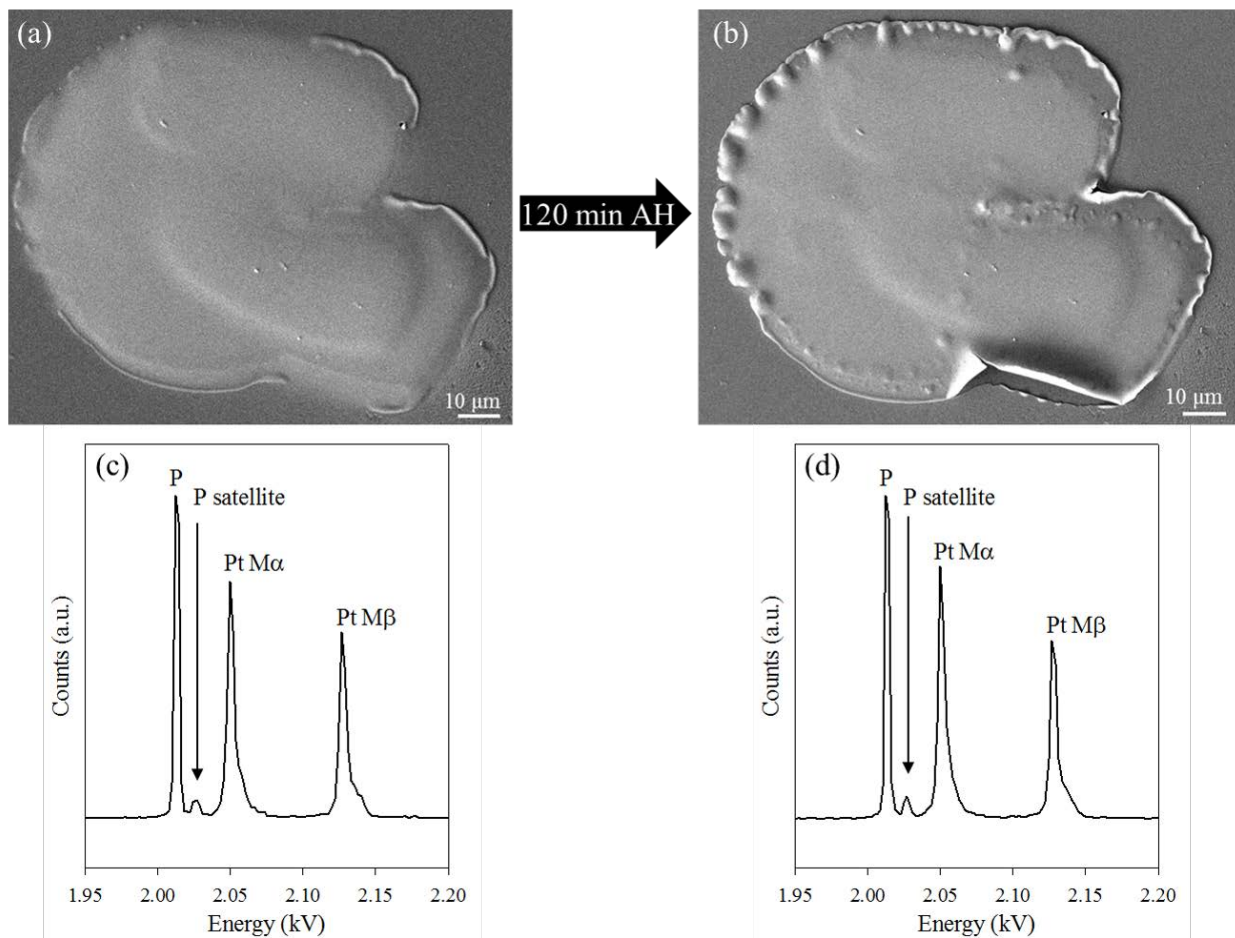


**Figure S5:** SEM and EDS data for a deposit created from MeCpPtMe<sub>3</sub> on a Ru coated Si/Mo multi-layer substrate. A SEM image of this deposit prior to atomic hydrogen treatment is shown in (a), with the corresponding EDS spectra shown in (c). The deposit is shown in (b) after 2 hours of atomic hydrogen treatment at  $P_{\text{H}_2} \sim 1$  Torr ( $7.2 \times 10^9$  L), and corresponding EDS data is shown in (d).



**Figure S6:** SEM and EDS data for a deposit created from  $\text{Pt}(\text{hfac})_2$  on a  $\text{SiO}_2$  substrate. A SEM image of this deposit prior to atomic hydrogen treatment is shown in (a), with the corresponding EDS spectra shown in (c). The deposit is shown in (b) after 2.5 hours of atomic hydrogen treatment at  $P_{\text{H}_2} \sim 1$  Torr ( $9.0 \times 10^9$  L), and corresponding EDS data is shown in (d).





**Figure S7:** SEM and WDS data for a deposit created from  $\text{Pt}(\text{PF}_3)_4$  on a Ru coated Si/Mo multi-layer substrate. A SEM image of this deposit prior to atomic hydrogen treatment is shown in (a), with (c) the corresponding WDS spectra. The deposit is shown in (b) after 2 hours of atomic hydrogen treatment at  $P_{\text{H}_2} \sim 1$  Torr ( $7.2 \times 10^9$  L), and corresponding WDS data is shown in (d).