

Supporting electronic information:

Platinum-hydrogen vibrations and low energy electronic excitations of 13-atom Pt nanoclusters

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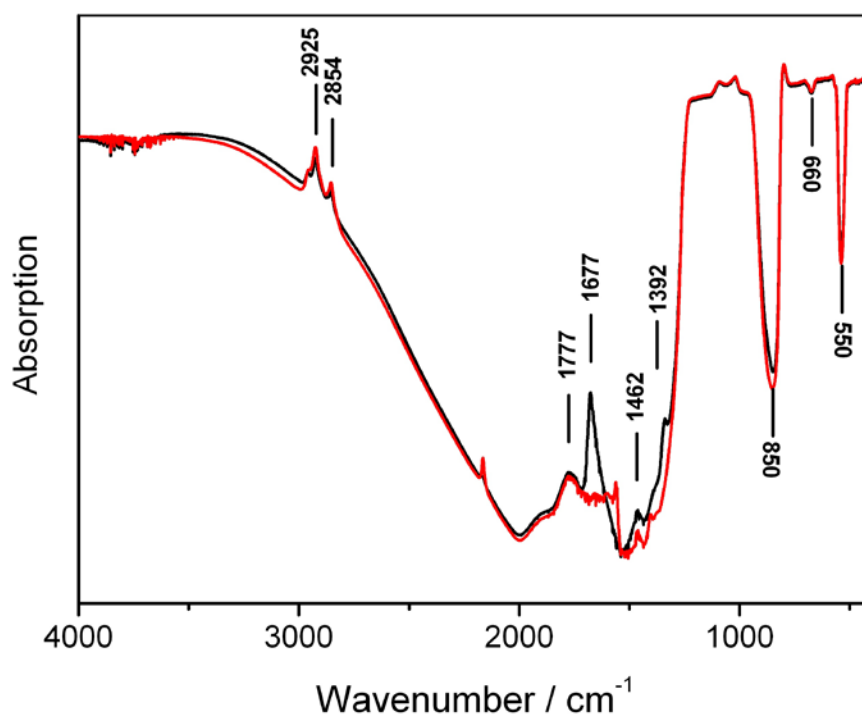


Figure S1: Raw spectra of the Pt/KL sample after initial hydrogen (H_2) reduction (black) and after hydrogen desorption at 573 K (red), measured as difference against the empty cell. Such spectra are taken as the background which is subtracted by the instrument software from all spectra of the subsequent series of measurements. It is seen that the zeolite blocks IR radiation below ca. 1380 cm^{-1} except at two narrow windows at 850 and 550 cm^{-1} . The noise-like features near 3700 cm^{-1} belong to water vapour in the beam (likely outside the cell) and the bands at 2925 and 2854 cm^{-1} are C–H stretching vibrations of organic condensates, perhaps on the cell window.

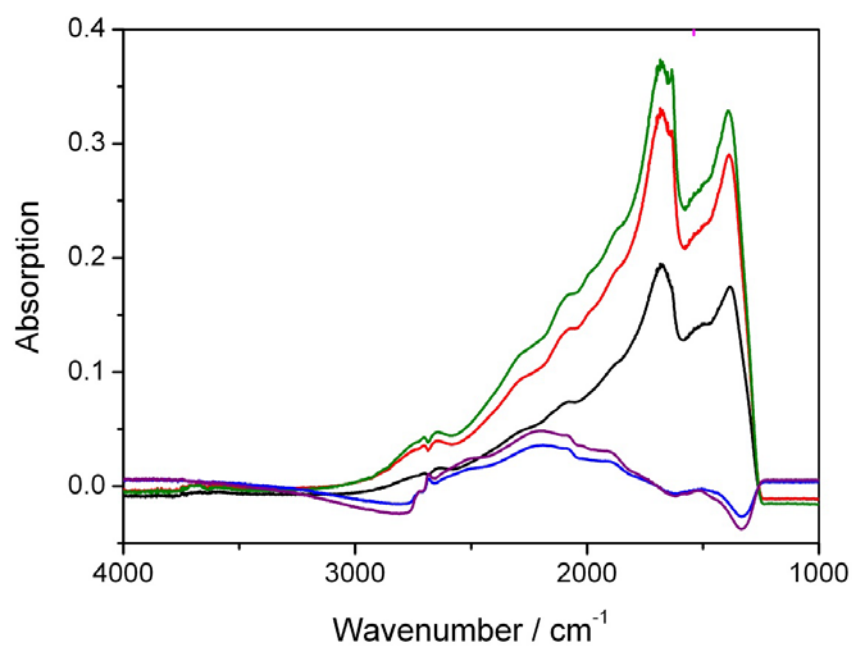


Figure S2: Extended range of IR difference spectra shown in Figure 1 to illustrate the absence of significant absorption due to the Pt clusters above ca. 3100 cm⁻¹ (From top to bottom: H₂ 200 mbar (green), H₂ 40 mbar (red), H₂ 0.5 mbar (black), D₂ 40 mbar (purple), D₂ 1 mbar (blue)).