Supplementary Information for

Spatially Localized Synthesis and Structural Characterization of Platinum Nanocrystals Obtained using UV Light

Jonathan Quinson,[†,‡,*] *Laura Kacenauskaite,*[†,‡] *Troels L. Christiansen,*[†] *Tom Vosch,*[†,*] *Matthias Arenz*[※,†,*] *and Kirsten M. Ø. Jensen*[†,*]

[†] Nano-Science Center, Department of Chemistry, University of Copenhagen, Universitetsparken 5, DK-2100 Copenhagen Ø, Denmark

[※] Department of Chemistry and Biochemistry, University of Bern, Freiestrasse 3, CH-3012 Bern, Switzerland

KEYWORDS

platinum, nanoparticles, UV-induced synthesis, polyol process, pair distribution function

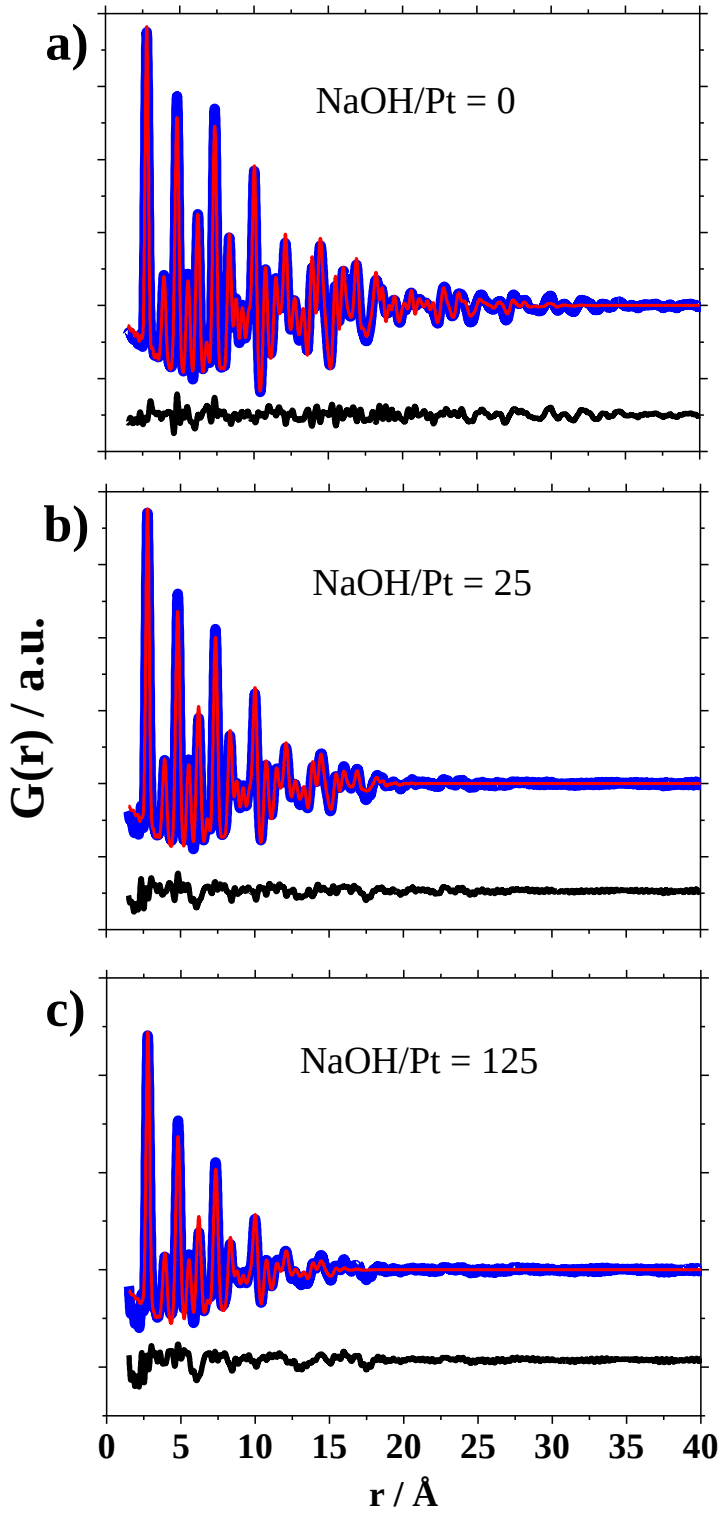

Figure S1. Raw data (blue), fit (red) and difference between fit and raw data (black) for Pt nanoparticles obtained with a NaOH/Pt molar ratio of (a) 0, (b) 25 and (c) 125. The PDFs were modelled applying a spherical dampening function.

Table S1. Table comparing the size of the nanoparticles obtained for different NaOH/Pt molar ratio by UV-induced synthesis for PDF using a spherical envelope model.

	PDF		
	Spherical envelope		
NaOH/Pt	0	25	125
Mean crystallite diameter / Å	34	22	18
Rw / %	12.0	13.1	19.3
Unit cell / Å	3.932	3.931	3.927
Biso / $Å^{-2}$	0.86	0.94	1.12
delta2 / Å	3.86	3.69	3.96

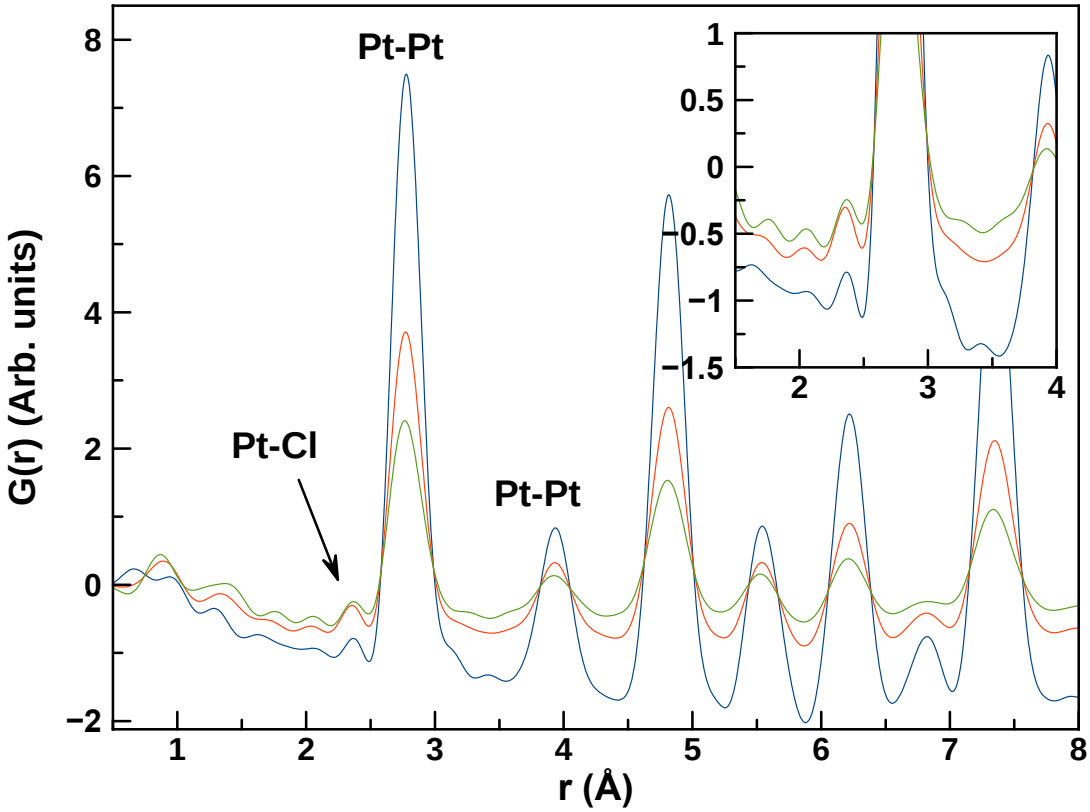

Figure S2. PDFs from the 3 samples: The blue line shows data from NaOH/Pt=0, red from NaOH/Pt=25 and green from NaOH/Pt=125. A small PDF peak is seen at 2.4 Å, corresponding to a Pt-Cl distance, either from remaining platinum chloride complexes formed during the synthesis, or from interactions between Cl^- ions and the particle surface.

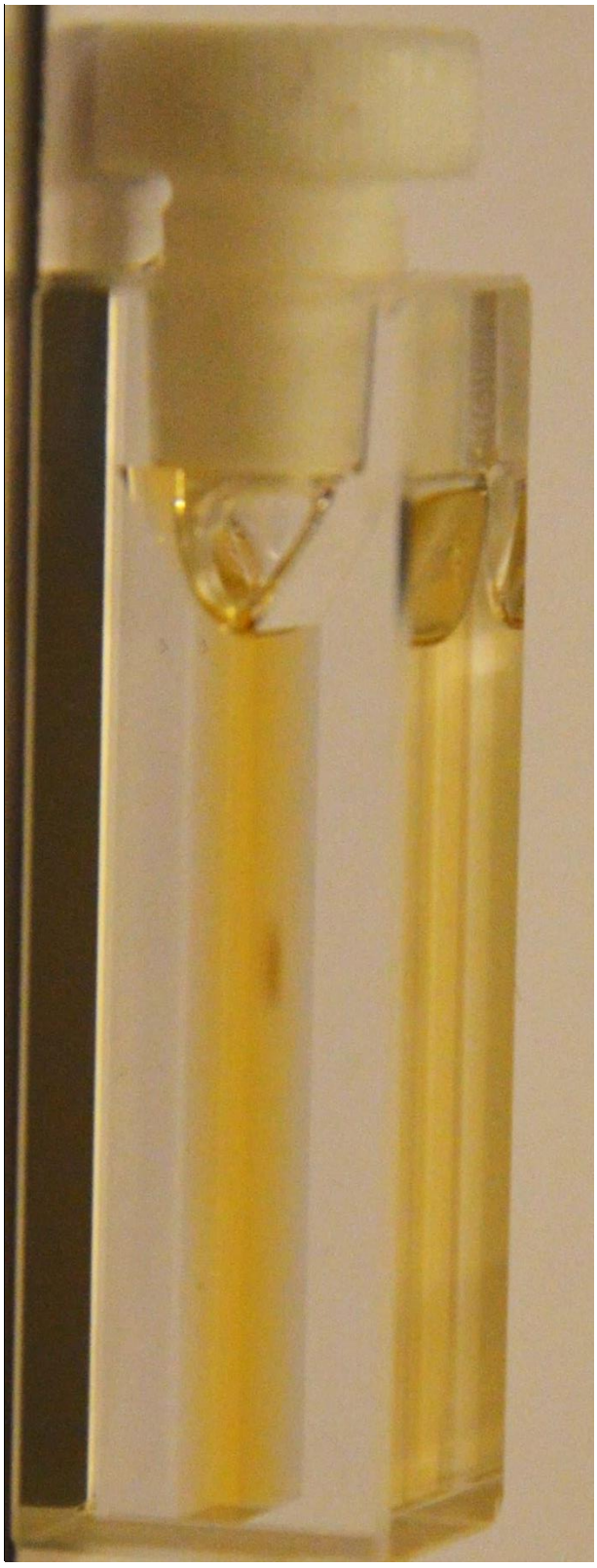

Figure S3. Pictures of a solution of H_2PtCl_6 in alkaline ethylene glycol in a 1 mm path length quartz cuvette after exposure to a UV laser. The picture is taken at an angle to see the brown spot corresponding to the formation of Pt nanoparticles.