Electronic Supplementary Material

Electrochemical top-down synthesis of C-supported Pt nanoparticles with controllable shape and size: Mechanistic insights and application

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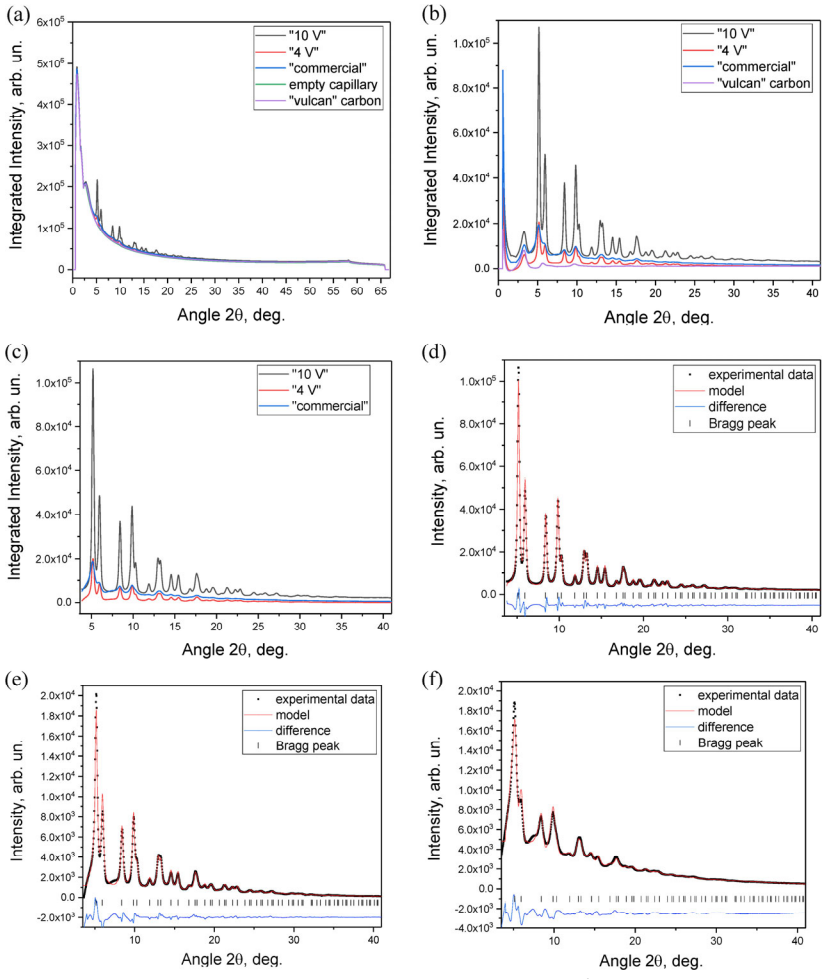

Figure S1. Experimental diffraction data collected at 60 keV incident photon energy (λ=0.20708 Å): (a) as collected, (b) empty capillary subtracted and (c) Vulcan carbon data subtracted and (c) results of Rietveld analysis on subtracted data (d) for Pt/C10V, (e) Pt/C4V and (f) commercial Pt/C. Vertical tick marks correspond to the calculated peak positions of Pt.

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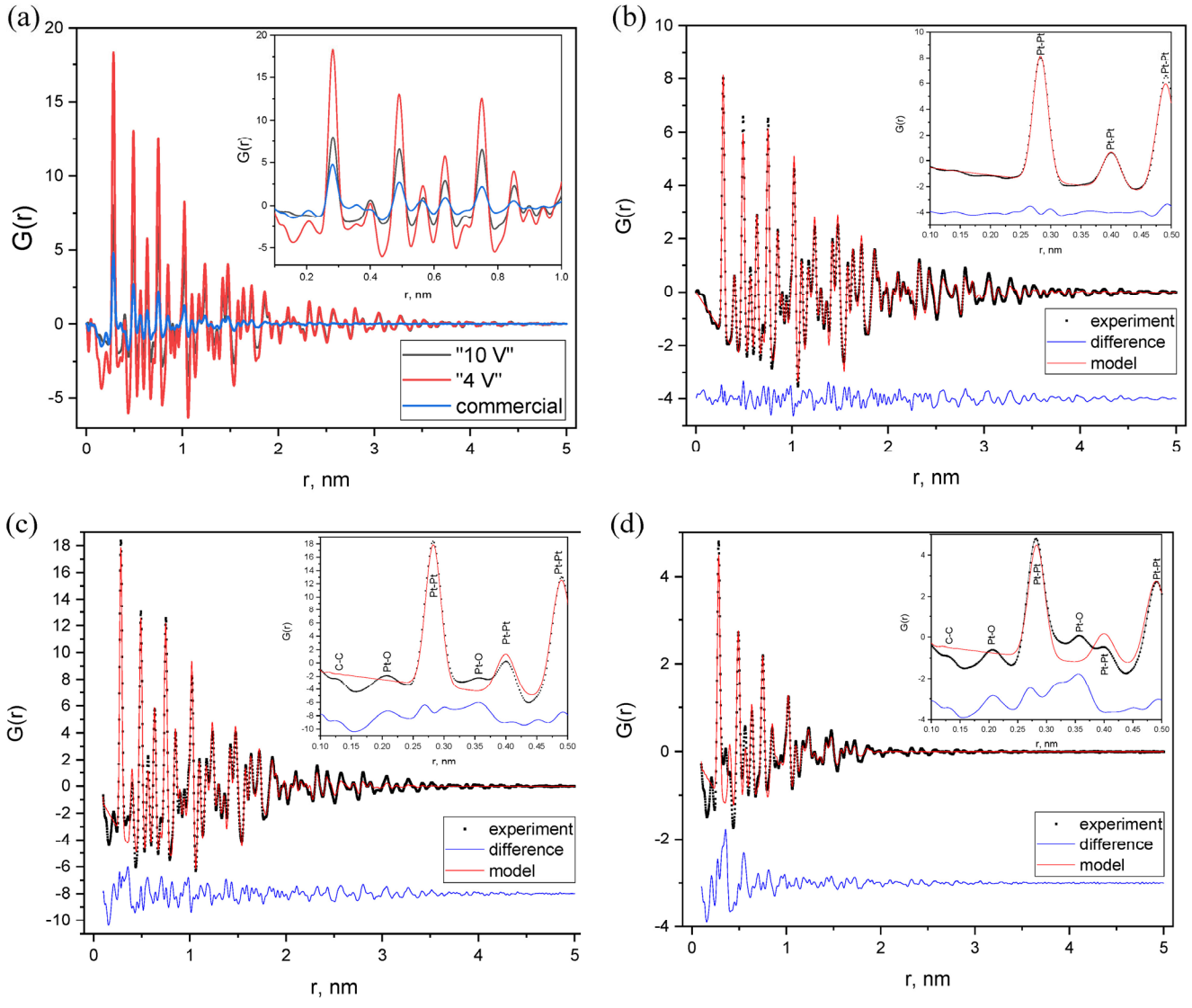

Figure S2 Experimental pair distribution functions (a) for the three samples studied and results of their modelling (b) for Pt/C_{10V}, (c) Pt/C_{4V} and (d) commercial Pt/C. Inset indicate the enlarged section of PDFs highlighting nearest coordination.

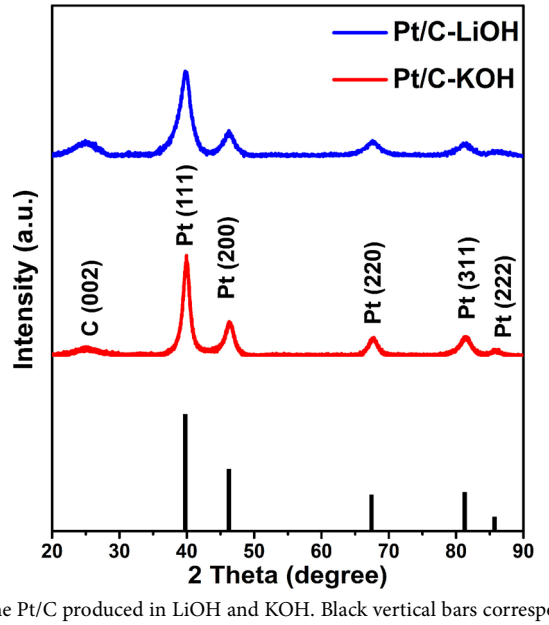

Figure S3 Powder XRD diffractogram of the Pt/C produced in LiOH and KOH. Black vertical bars correspond to the peak positions of pure Pt as taken from PDF card number 04-0802.

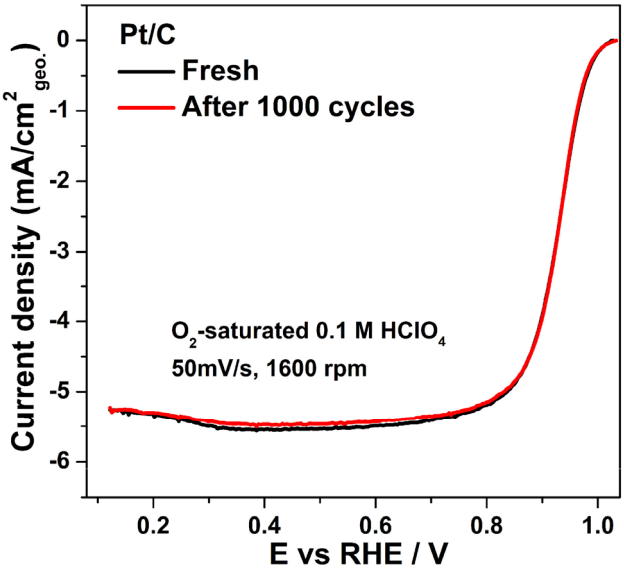

Figure S4 Stability test measurements. Anodic polarization curves (iR-corrected) of Pt/C prepared in LiOH before and after 1000 accelerated durability test cycles.

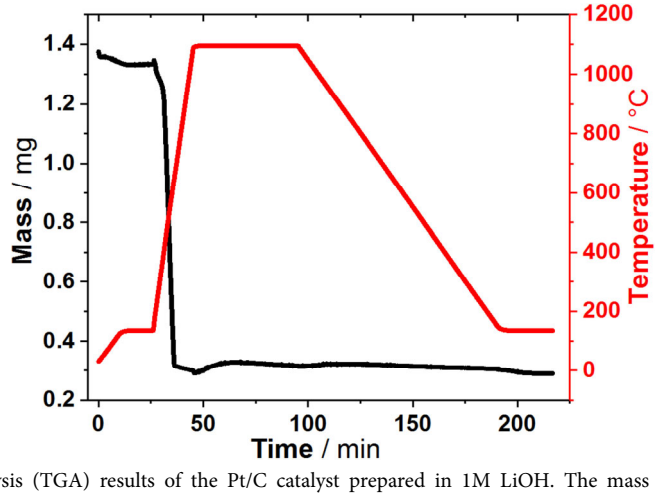

Figure S5 Thermogravimetric analysis (TGA) results of the Pt/C catalyst prepared in 1M LiOH. The mass loading of the platinum in Pt/C was determined to be 20±0.5 wt %.