

RSC Advances Supporting Information

Superhydrophobic Au/polymer nanocomposite films via AACVD/swell encapsulation tandem synthesis procedure

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Transmission Electron Microscopy

The nanoparticle diameter assay was conducted on a total of 338 particles. The mean nanoparticle diameter was found to be 4.7 ± 1.2 nm with minimum and maximum particle diameters of 2.3 nm and 8.9 nm respectively. The interquartile range was found to be 1.72 nm, with the median nanoparticle diameter at 4.7 nm.

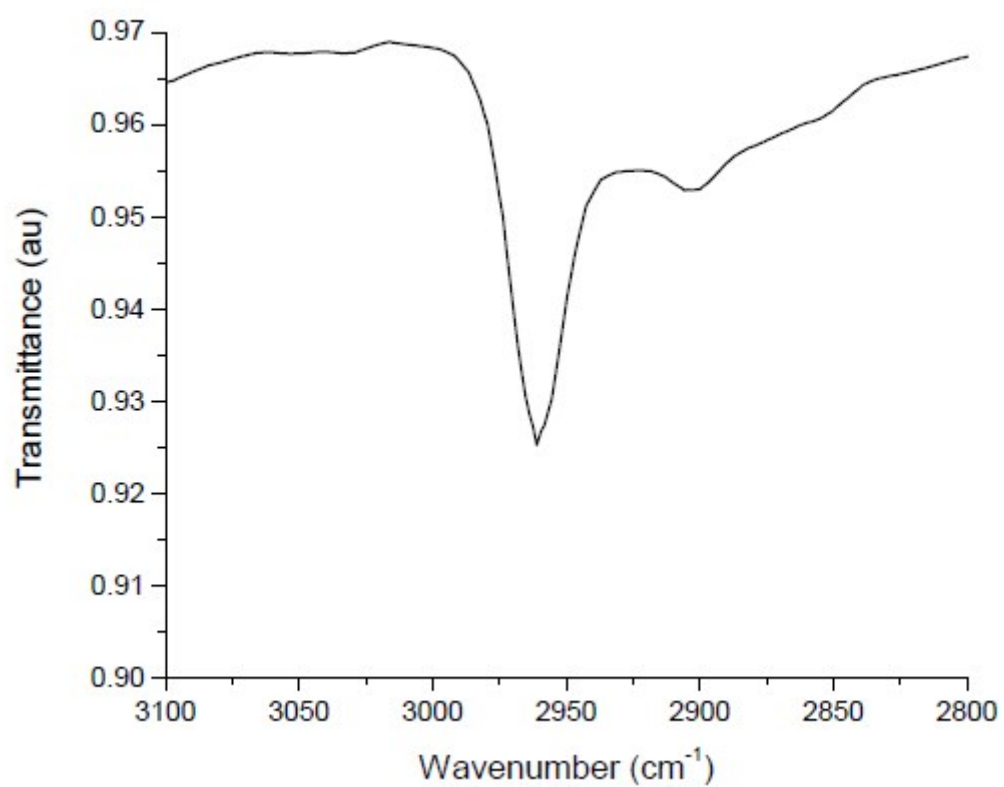


Figure 1 - Attenuated Total Reflection (ATR) FTIR spectrum of superhydrophobic Sylgard-184 film deposited by AACVD at 390°C, displaying expected C-H stretches at 2960 and 2910 cm⁻¹.

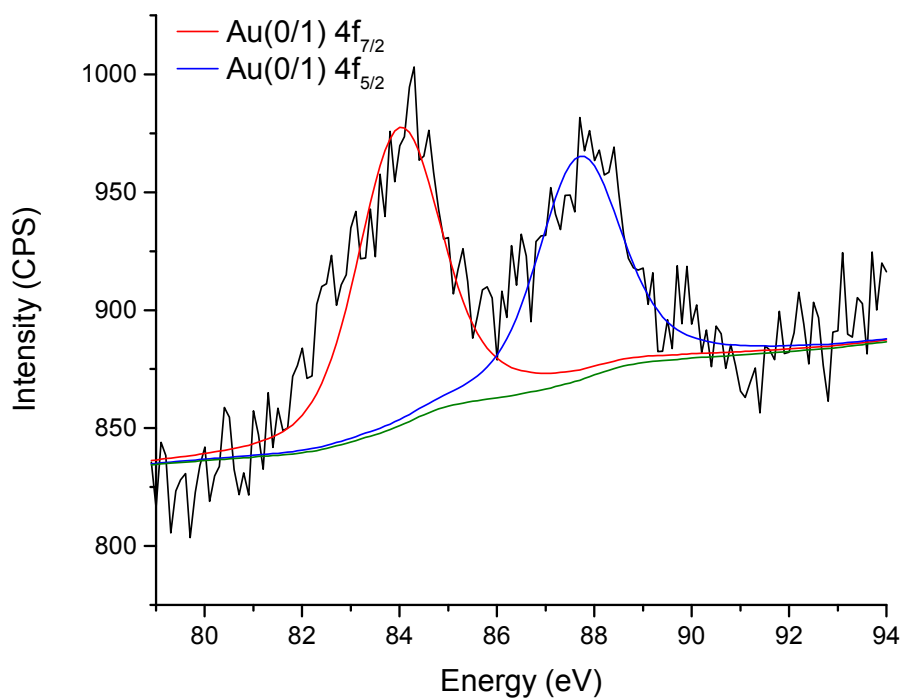


Figure 2 - XPS spectrum of superhydrophobic PDMS film deposited by AACVD then swell-encapsulated for 2 h in a toluene dispersion of Au at approximate concentration 0.1 g/L. The low intensity made deconvolution difficult; the analysis shown is of overlapping Au(0) and Au(I) doublet peaks.

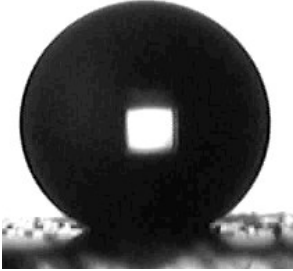
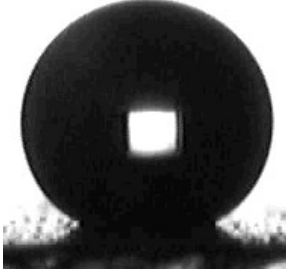
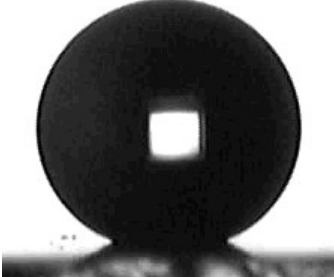
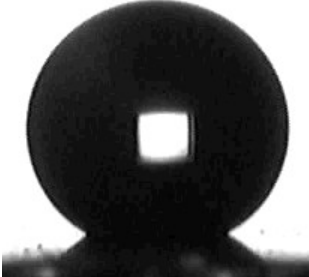
	As-deposited	Post-swelling
<i>Pre- test</i>	 $\theta_c = 169^\circ$	 $\theta_c = 158^\circ$
<i>Post-Scotch tape test</i>	 $\theta_c = 163^\circ$	 $\theta_c = 160^\circ$

Table 1 - Measurement of contact angles of as-deposited and post-swelling superhydrophobic PDMS thin films, before and after applying the Scotch tape test to each.

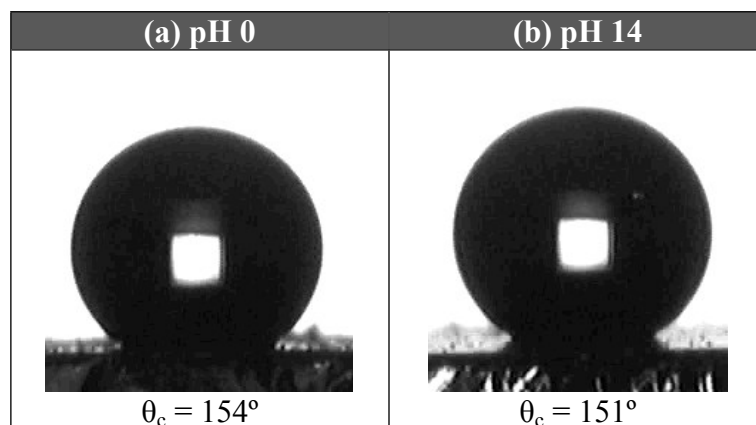


Table 2 - Measurement of contact angles of superhydrophobic PDMS films, soaked for an hour in aqueous solutions of (a) 1M HCl (pH 0), and; (b) 1M NaOH (pH 14).