Anti-agglomerating effect in vertically aligned carbon nanotubes derived by antisolvent precipitation of naphthalene

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Supplementary Information

1. Optical micrographs

Fig. S1. Optical micrographs of VA-CNTs: (a) as-prepared VA-CNTs, (b) VA-CNTs subjected to process A, (c) VA-CNTs subjected to process B, and (d) VA-CNTs subjected to process C. The as-prepared VA-CNTs appeared very dark due to their low optical reflectance, as recently reported [Z.-P. Yang, L. Ci, J. A. Bur, S.-Y. Lin and P. M. Ajayan, Nano Lett., 2008, 8(2), 446]. The VA-CNTs subjected to processes A and B displayed with dark and light contrast patterns induced by CNT agglomeration, whereas most of the surface area retained a dark appearance after being subjected to process C.
Fig. S2. Typical TEM images of (a) as-prepared CNTs, (b) CNTs deposited with Pt nanoparticles (Pt-CNTs), and (c) Pt-CNTs with high magnifications. The Pt nanoparticles had diameters less than 5 nm. Fringes in a Pt nanoparticle shown in the highest magnification image had a periodicity of 0.23 nm, which corresponds to the lattice spacing of Pt(111) plane. Pt-CNTs detached from the substrate were loaded onto a TEM grid by dispersion in EtOH by ultrasonication and then dropping onto the TEM grid, followed by evaporation of the EtOH. The Pt-CNTs in the TEM images are highly packed due to agglomeration during the EtOH evaporation step.