Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C

Electronic Supplementary Information

Tunable filling rate and increased ferromagnetic properties of nickel-filled carbon nanotubes synthesized from a Pauli paramagnetic lanthanum nickel ($LaNi_5$) alloy catalyst

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1. Digital photographs of $LaNi_5$ alloy catalyst and pre-treated catalyst

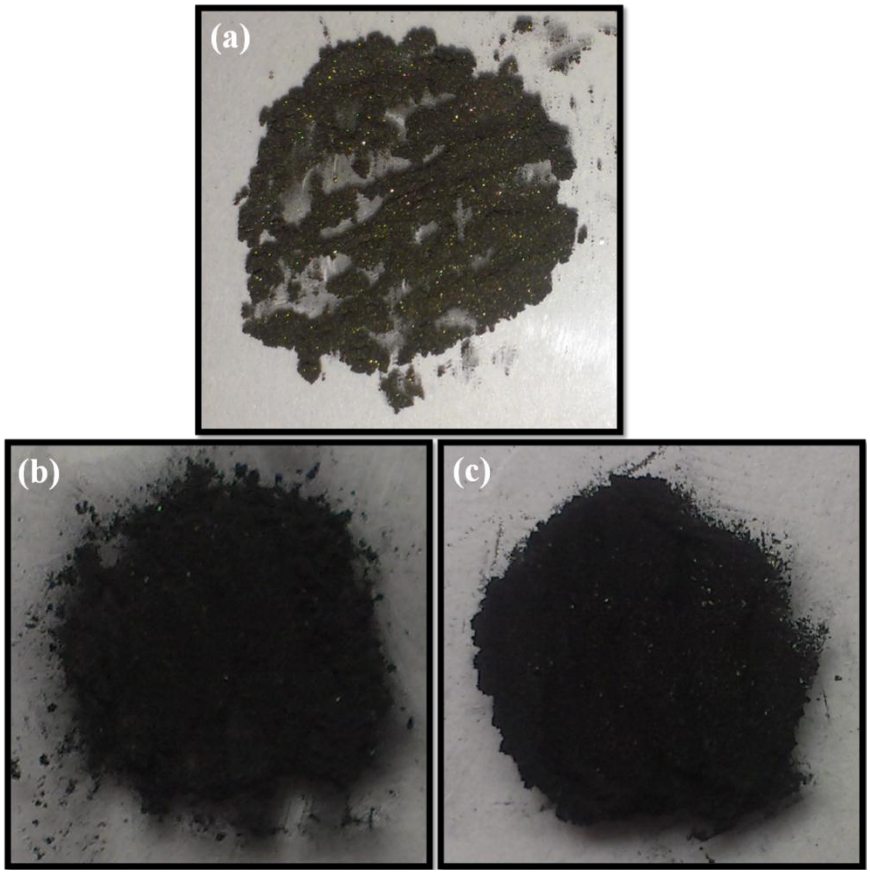

Fig. S1 – Digital photographs of (a) commercially purchased $LaNi_5$ alloy catalyst (b) oxidized catalyst at 400 °C and (c) pre-treated catalyst (oxidation at 400 °C followed by H_2 reduction at 550 °C).

2. TEM, HRTEM and SAED analyses of pretreated $LaNi_5$ alloy catalyst

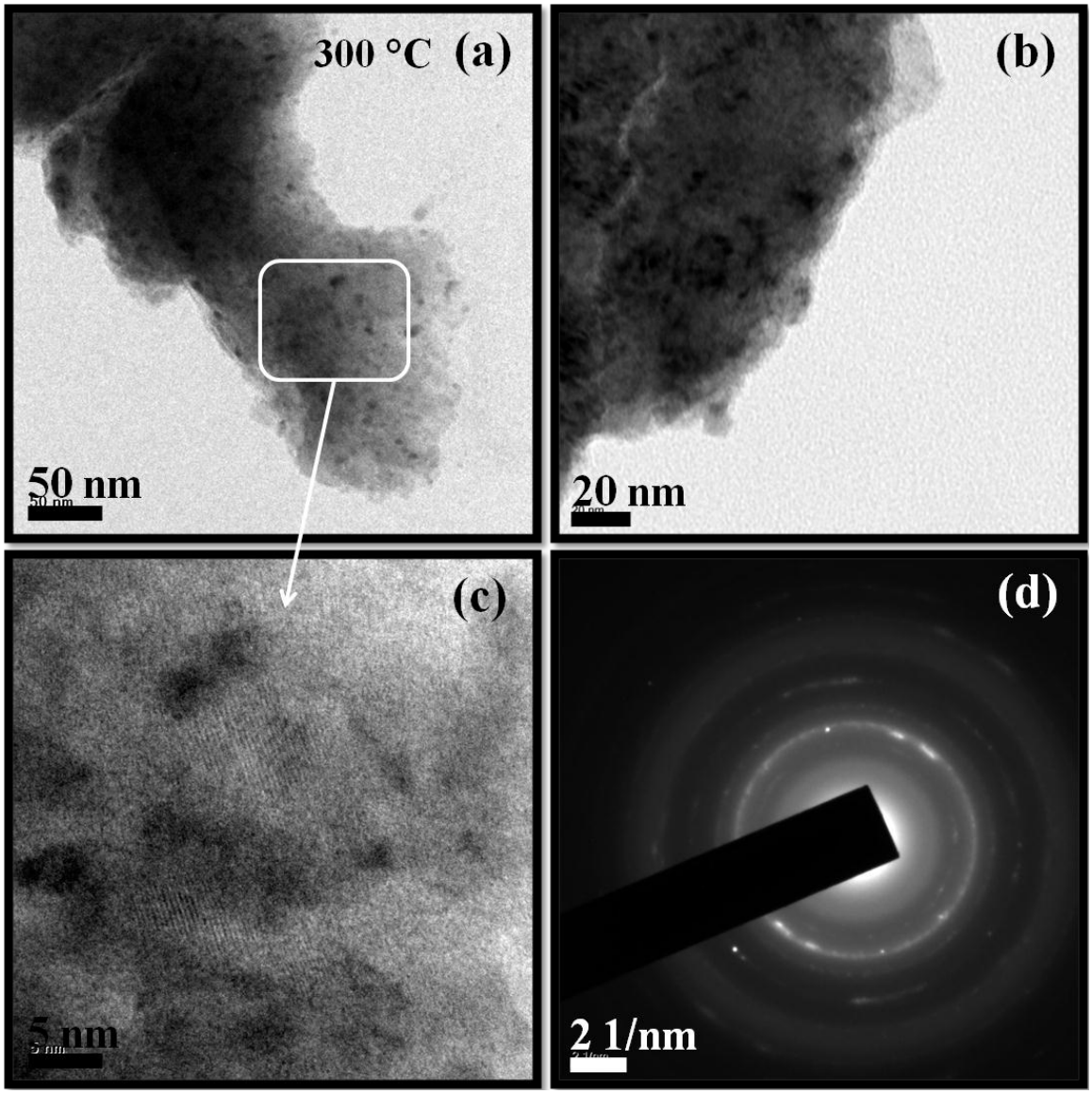

Fig. S2 – TEM analysis of pre-treated catalyst (oxidized at 300 °C followed by H_2 reduction at 550 °C); (a, b) High magnification TEM images, (c) HRTEM image and (d) SAED pattern.

3. SEM and TEM analyses of pristine CNTs

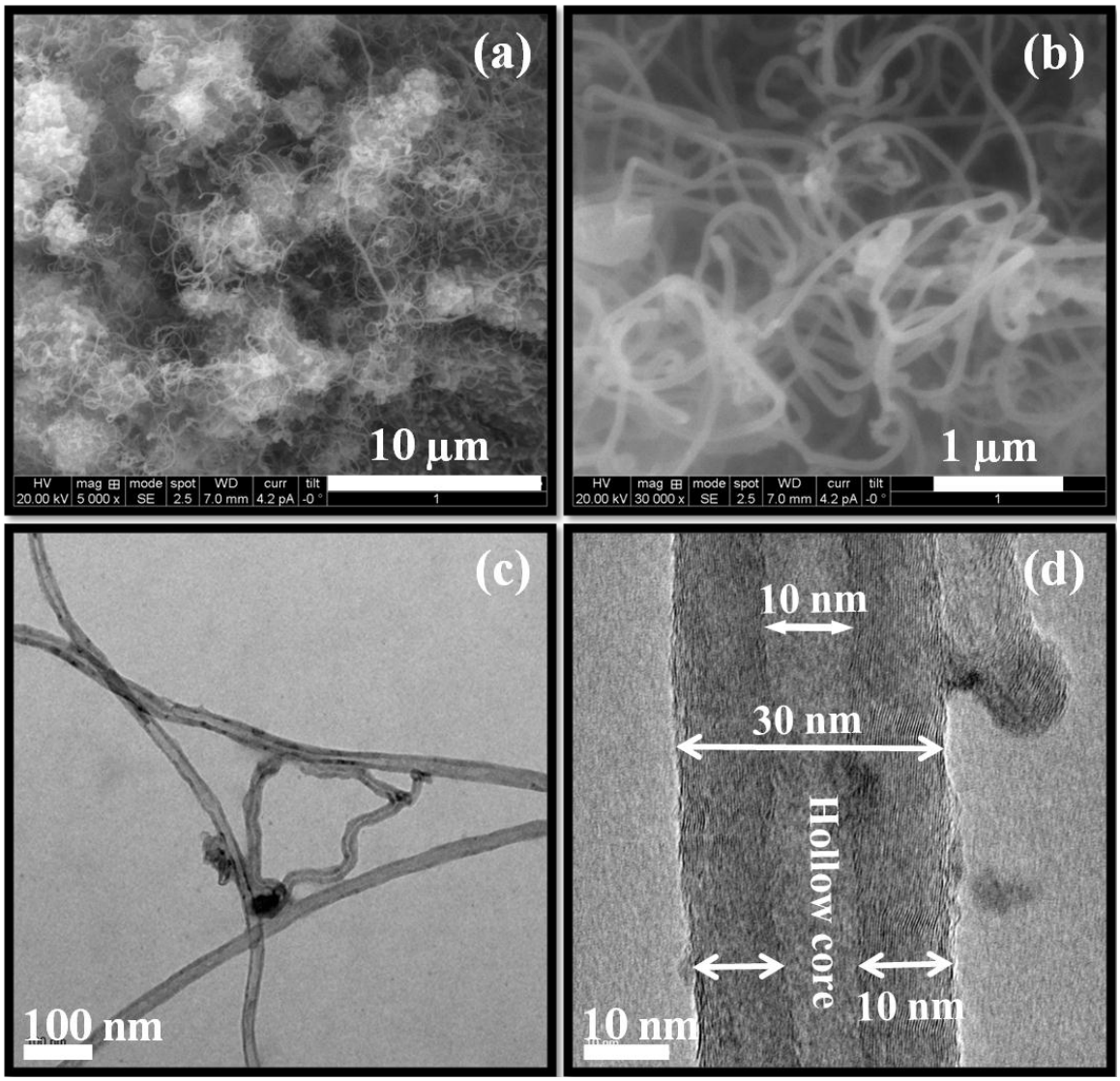

Fig. S3 – (a, b) SEM and (c, d) TEM images of pristine CNTs synthesized from pyrolysis of C_2H_2 over $LaNi_5$ alloy catalyst at 700 °C.