Electronic Supplementary Material (ESI) for RSC Advances.

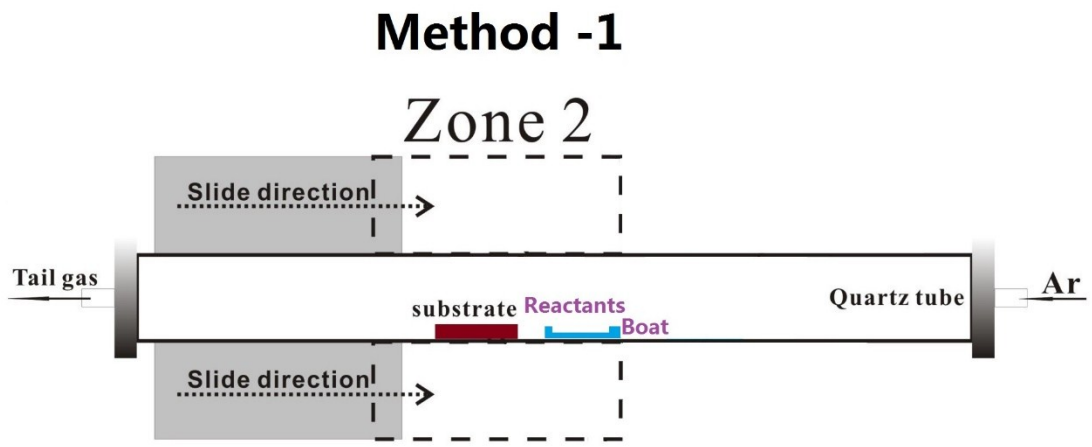

Figure Supp.1: Schematic of the CVD system used in method-1. In this case no pre-heater is used. The reaction-furnace is moved along a rail system to start the reaction and to cool-down the system once the reaction is completed. The reactants are positioned in proximity of the used substrate at a distance of approximately 3 cm. An Ar flow is generally used to transport the reactants in the reaction zone. A 111 Si/SiO_2 substrate is generally placed in the reaction zone for the growth of the desired nanostructures. See manuscript for detailed experimental conditions. Note that this method has the advantage of minimizing the vapour in-homogeneities that are otherwise created when a preheater is used as evaporation zone (due to the physical timescale necessary for reaching and stabilizing the desired temperature or to the too low temperature of evaporation)

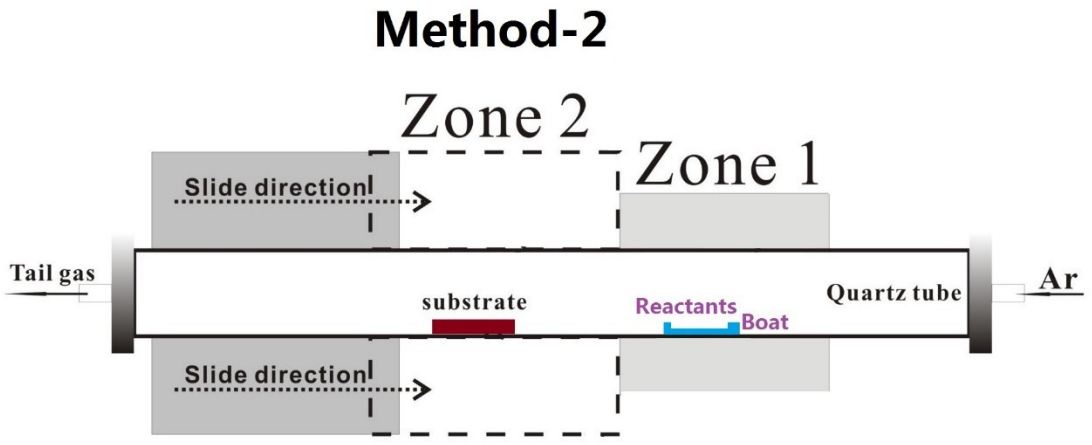

Figure Supp.2: Schematic of the CVD system used in method-2, consisting of a small furnace which is used as pre-heater, a larger furnace used for the reaction zone and a quartz tube of 1.5 m. An Ar flow is generally used to transport the reactants in the reaction zone. A 111 Si/SiO_2 substrate is generally placed in the reaction zone for the growth of the desired nanostructures. See manuscript for detailed experimental conditions. Note that for experiments performed in viscous boundary layer, the substrate is replaced with a rough quartz surface prepared with a diamond wheel cutting

tool.

Sample	dichlorobenzene		ferrocene		Molar Ratio
Fe3C filled CNTs 1	0.05 ml	0.00042 mol	0.06 g	0.00032 mol	0.76010754
Fe3C filled CNTs 2	0.15 ml	0.00127 mol	1.5 g	0.00806 mol	6.334229498

Figure Supp.3: Table showing the molar ratio of the used reactants for the ferrocene/dichlorobenzene mixtures.

FePd3 Samples	dichloro-cyclooctadiene-Pd		Ferrocene		Molar Ratio
hybrid structure	0.09 g	0.00032 mol	0.09 g	0.00048 mol	1.534752459
radial CNTs	0.3 g	0.00105 mol	1.1 g	0.00591 mol	5.627425684

Figure Supp.4: Table showing the molar ratio of the used reactants for the ferrocene/dichlorocyclooctadiene-palladium mixtures.

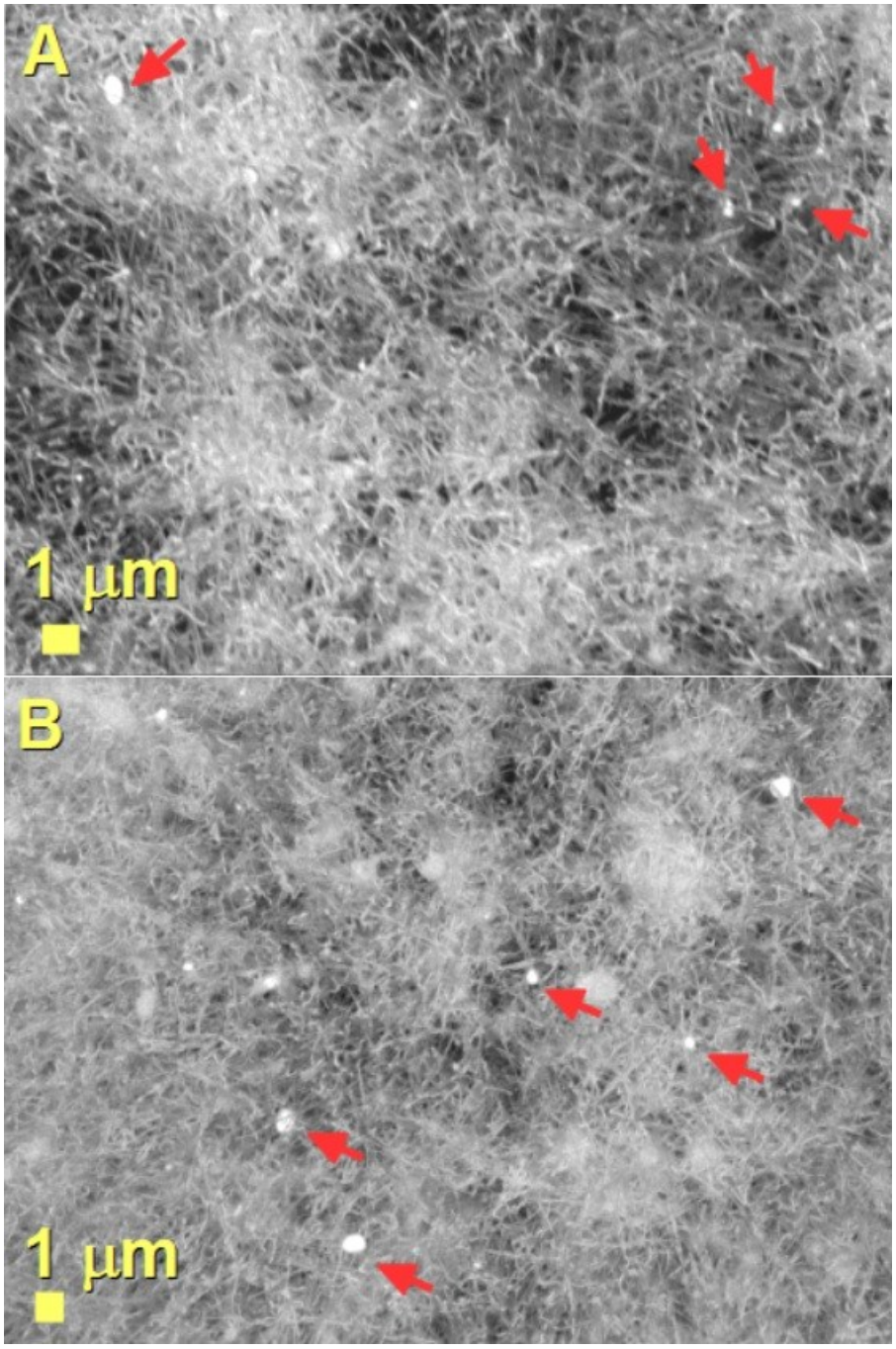

Figure Supp.5: SEM micrographs in backscattered electron mode showing the morphology of the as grown Fe_3C filled CNTs type 1. The red arrows indicate the presence of CNOs as minority product of the reaction.

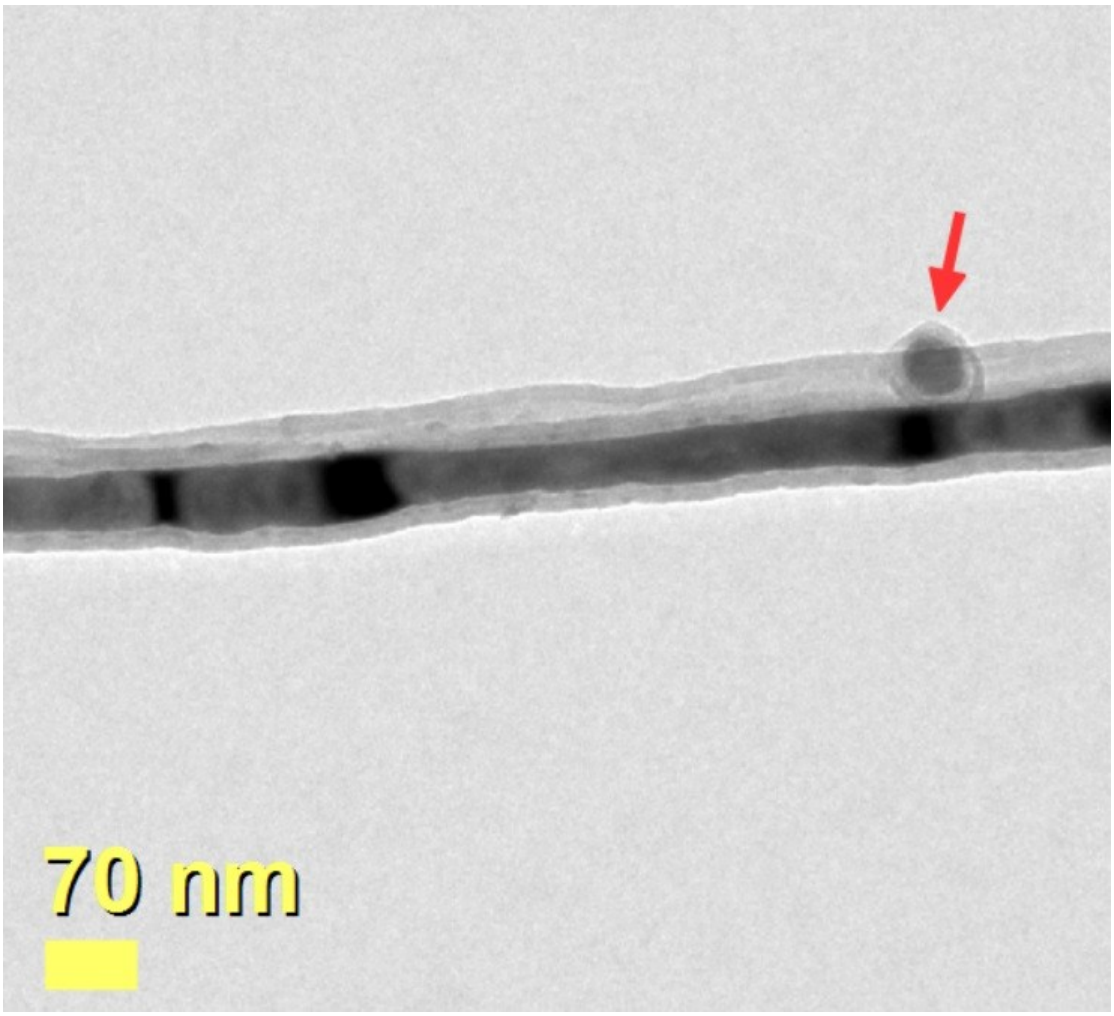

Figure Supp.6: TEM micrograph showing the observation of both filled CNTs and CNOs (red arrow) morphologies as product of ferrocene (60 mg)/dichlorobenzene (0.05 ml) pyrolysis.