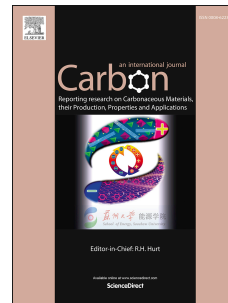


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Growth of high quality, high density single-walled carbon nanotube forests on copper foils

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Abstract

We demonstrate the growth of high quality single-walled carbon nanotube (SWCNT) forests on commercial Cu foils by cold-wall chemical vapor deposition. Time-of-flight secondary ion mass spectrometry was employed to study the effect of annealing on the catalyst evolution with or without an AlO_x barrier layer. X-ray photoelectron spectroscopy was used to investigate the chemical states of the catalyst and the barrier layer. SWCNT forests can be reproducibly grown on Cu foils sputter-coated with Al and Fe layers as thin as 6 nm and 0.4 nm, respectively. Al transforms into AlO_x on exposure to air and during annealing. Most importantly, such a thin AlO_x barrier

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