

The internal structure of vertically aligned single-walled carbon nanotube films

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In this study, we investigated the internal structure of 'as-grown' vertically aligned single-walled carbon nanotube (VA-SWNT) films by cross-sectional transmission electron microscopy (TEM). The VA-SWNTs were produced by the alcohol catalytic CVD method [1, 2], and transferred onto a TEM grid using a hot water technique [3]. The resulting freestanding VA-SWNT film was observed along the alignment direction, revealing cross-sections of the interior of the film. Cross-sections at various depths into the film were obtained by changing the focal plane. Due to the alignment of the

SWNTs, many bundle cross-sections were observable, revealing the film consists of very small bundles, typically containing 3-10 SWNTs per bundle [4].

References:

[1] S. Maruyama et al., Chem. Phys. Lett. 360 (2002) 229.

[2] Y. Murakami et al., Chem. Phys. Lett. 385 (2004) 298.

[3] Y. Murakami and S. Maruyama, Chem. Phys. Lett. 422 (2006) 575.

[4] E. Einarsson et al., submitted; E. Einarsson et al., cond-mat/0702630.