

CVD Growth and Characterization of Vertically-Aligned Single-Walled Carbon Nanotubes

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The vertically aligned single-walled carbon nanotubes (SWNTs) film [1, 2] with thickness up to 30 microns is grown on quartz or silicon substrates. Recently developed removal and transfer technique of this film [3] enabled a direct TEM observation of free-standing vertically aligned SWNTs along the alignment direction. It was revealed that the film is comprised primarily of small SWNT bundles, typically containing 3-8 SWNTs [4]. This minimum bundling structure is ideal for various optical characterizations such as resonant Raman [5] and possible production of homogeneous composite material [6]. Our recent studies of reaction kinetics of nanotube growth and optical characterization using polarized absorption and polarized Raman will be discussed. Thermal properties of this film and composite made of this film [6] are discussed.

References:

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