

Recent Developments in Technology for Horizontally Aligned Growth of Single-Walled Carbon Nanotubes

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Horizontally aligned growth of single-walled carbon nanotubes (SWNTs) on a substrate is an essential step towards the formation of rational architectures for electronic applications. We present our recent progress in horizontally aligned SWNT growth on a single-crystal sapphire substrate, in which two different alignment mechanisms, lattice-oriented growth and step-templated growth, were observed. Characterization of aligned SWNTs on sapphire suggests the crystal plane dependence of diameter and chiral angle distributions. In addition, our recent achievements in aligned SWNT growth on a surface-modified Si substrate is also demonstrated.

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