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Chirality Predicted Growth of Singled-walled Carbon Nanotubes Array

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Abstract:

In this talk, I will show that the predictable (2m, m) SWNTs with four- or six-fold symmetry can be grown horizontally by optimizing the growth parameters in a chemical vapor deposition (CVD) process. The method is based on a consideration of nanotube/catalyst interfacial thermodynamics determined by symmetry, and the kinetic growth rates set by the number of kinks. Using these strategies, horizontally aligned metallic ((12, 6), abundance >90%) and semiconducting ((8, 4), abundance >80%) SWNT arrays with an average density higher than 20 tubes/ μm and 10 tubes/ μm , respectively, were successfully obtained on uniform solid catalysts.



References:

1. J Zhang et. al., Chirality Controlled Growth of Horizontal Carbon Nanotubes Array with Designed Catalysts, *Nature*, 543 (2017), 234-238.

Biography:

Prof. Jin Zhang received his PhD from Lanzhou University in 1997. After a two year postdoctoral fellowship at the University of Leeds, UK, he returned to Peking University where he was appointed Associate Professor (2000) and promoted to Full Professor in 2006. In 2013, he was appointed as Changjiang professor. He also is the Fellow of RSC. His research focuses on the controlled synthesis and spectroscopic characterization of carbon nanomaterials. Dr. Zhang has published over 230 peer-reviewed journal articles.

主催:

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