

Abstract Submitted
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Effective Growth of Boron Nitride Nanotubes by Thermal-CVD¹

CHEE HUEI LEE, MING XIE, DEREK MEYERS, JIESHENG WANG, YOKE KHIN YAP, Department of Physics, Michigan Technological University, 1400 Townsend Dr, Houghton, MI 49931 — The synthesis of boron nitride nanotubes (BNNTs) are challenging as compared to the growth of carbon nanotubes (CNTs). Most of reported techniques required unique setup and temperatures >1300 °C. Here we show that clean and long multiwalled BNNTs can be grown by simple catalytic thermal CVD. This was obtained by a growth vapor trapping approach inspired by the whisker nucleation theory. Based on our new findings, we have achieved patterned growth of BNNTs at desired locations. High resolution TEM shows that these BNNTs are highly crystallized. Besides, the tangential vibrational mode predicted by theory was detected in our BNNTs. This vibration mode could be the fingerprint for BNNTs with high crystallinity.

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