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Bamboo-shaped boron nitride nanotubes synthesized at a low temperature

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Highly crystalline boron nitride (BN) nanotubes with uniform diameter of 50~80 nm were synthesized in bulk quantity on Al_2O_3 substrates through the reaction of a BN/B power mixture with NH_3 at 1000~1100°C by thermal CVD. Our method allows the BN nanotubes to grow at a low temperature such as 1000~1100°C. The nanotubes are hollow with a tubular, multi-walled, and bamboo structure. SEM, TEM, HRTEM, EELS and Raman measurements were performed to investigate the structure and composition of BN nanotubes.