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Optimum growth of vertically-aligned boron nitride nanotubes at low temperatures JIESHENG WANG, MING XIE, YOKE KHIN YAP[1], Michigan Tech University — Boron nitride nanotubes (BNNTs) are well recognized as the candidate that will complement the uses of carbon nanotubes in nanotechnology. However, high growth temperatures (>1100 °C), low production yield, and impurities have hindered research and applications of BNNTs. We have recently reported the first success of growing pure BNNTs by RF-plasma enhanced pulsed-laser deposition at 600 °C. These BNNTs can be grown vertically aligned into arrays of regular patterns, and can be used for applications without purification. In this work, we have compared the growth of these BNNTs by a series of catalysts. Electron microscopy images indicate the growth of pure BNNTs with high structural order. UV Raman Spectroscopy demonstrates a peak at 1372 cm^{-1}, which corresponds to a E2g mode of h-BN networks of these BNNTs. The effect of catalyst, growth temperatures, ambient gas pressures, substrate bias voltages and the growth mechanism will be described in detail in the meeting.

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