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Structural properties of BC₃N nanotube synthesized by dc PECVD

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BC₃N nanotubes were synthesized by dc plasma-enhanced chemical vapor deposition system. The mixture of C₂H₂, NH₃, N₂, and B₂H₆ gas was used as a precursor. Nanotubes were synthesized at 650°C for 15 min. The diameter and length of nanotubes were ~50 nm and ~3 μm, respectively. Nanotubes were composed of boron, carbon, and nitrogen that the ratio of each element was 0.31: 1.0 : 0.34, respectively. BC₃N nanotube had a bamboo-like or nanobell structure. Through element-mapping images by TEM, it shows that boron and nitrogen are uniformly distributed among nanotube.