Electronic Supplementary Material (ESI) for Journal of Materials Chemistry

Supporting Information

Facile Synthesis of Vertically Aligned Hexagonal Boron Nitride Nanosheets Hybridized with Graphitic Domains

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Figure S1(a) illustrates the synthesis apparatus used in our experiments. In order to grow BN nanosheets the alumina combustion boat was covered with a commercially available Si/SiO_2 substrate, as shown in Figure S1(b), but for obtaining BN–C nanosheets Si/SiO_2 substrate(s) were attached to a graphite sheet and placed on top of the combustion boat, as shown in Figures S1(c), (d). Narrow rectangular segments were removed from the surface of the graphite sheets in order to fix the Si/SiO_2 wafers there.

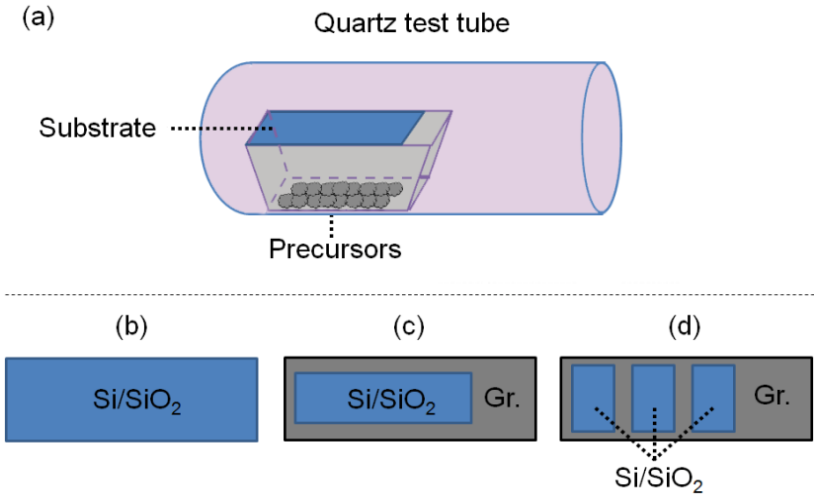

Figure S1. (a) Schematic illustration of the synthesis apparatus. (b) Si/SiO_2 substrate used to cover the combustion boat. (c, d) Si/SiO_2 substrates mechanically attached to the graphite sheets substrate used to cover the combustion boat.

The photograph of the as grown products is presented in Figure S2. The BN and BN-C films were transparent to visible light, due to their very low thickness.

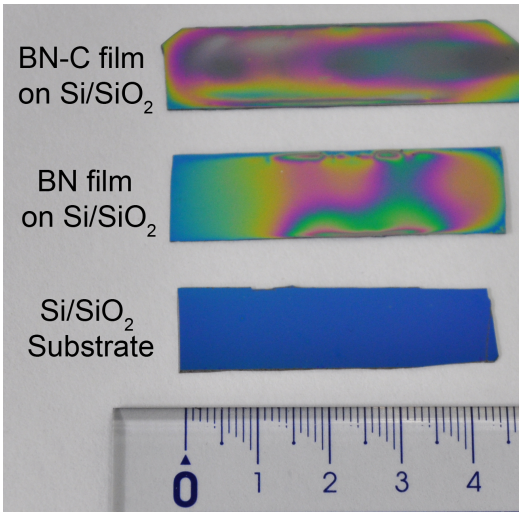

Figure S2. Photograph of the Si/SiO_2 substrate before and after coating with BN and BN-C nanosheets bundle.

HAADF scanning transmission electron microscopy (STEM) has good spatial resolution and is highly sensitive to variations in the atomic number of elements in the sample. The HAADF STEM elemental maps in Figure S3 indicate that C has been successfully incorporated into the BN layers. Since the elemental map signals are obtained from a bundle of BN-C sheets, they represent the distribution of elements in several layers of BN-C; therefore, the C distribution seems uniform in the map.

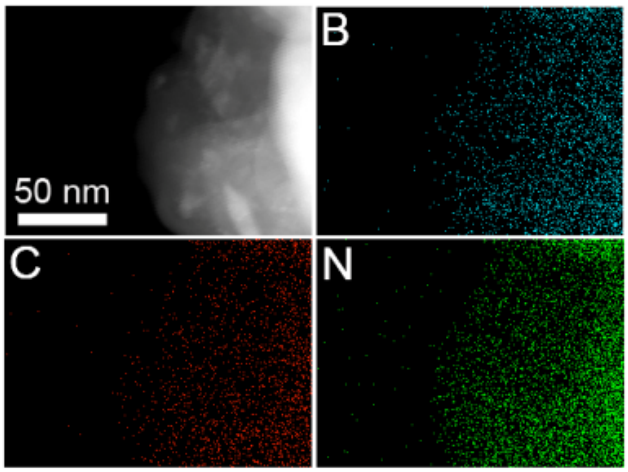

Figure S3. HAADF STEM images of a BN–C nanosheets bundle.