

### Fabrication of Boron Nitride Nanosheets/Graphene Multi-layer Film

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Hexagonal boron nitride (h-BN) has layered structures similar to graphite but, that is electrical insulator with wide bandgap of  $\sim 5.5$  eV. It shares similar mechanical strength and thermal conductivity properties with graphite. Few layer h-BN nanosheets (BNNSs) were successfully prepared using top-down approaches in polar solvent. Vigorous sonication was able to exfoliate BNNSs from the bulk BN particles with a strong polar solvent, N,N-dimethylformamide (DMF). The strong interactions between the polar DMF molecules and a BN surface would facilitate exfoliation, similar to graphite exfoliation. Detailed morphological and structural microscopic studies were carried out using SEM and TEM. Similar to the graphene film, the thin BNNS film was also fabricated using vacuum filtration with anodic aluminum oxide (AAO) membrane. The prepared BNNSs film was transferred to PET substrates. The multi-layer of BNNSs/graphene was also fabricated using the same method since the BN substrate supports the superior electrical properties of graphene. The sheet resistance of the multi-layer of BNNSs/graphene was investigated with a curvature of the substrates film.