Supporting Information

Hydrogen flame synthesis of few-layer graphene from solid carbon source on hexagonal boron nitride

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Measurement and characterization

TEM images were obtained with a JEOL JEM 2010 instrument, operated at 200 kV. SEM measurements were performed using a JEOL JSM-6700F instrument. Raman spectroscopy was performed on an inVia Renishaw Raman microscope using green (\(\lambda = 532 \text{ nm}\)) laser excitation. XPS experiments were carried out on a RBD upgraded PHI-5000C ESCA system (Perkin Elmer) with Mg K\(\alpha\) radiation (\(h\nu = 1253.6 \text{ eV}\)). The curve fitting was done using XPSpeak 4.0 software. The sheet resistances of graphene films were measured by the four-probe Van Der Pauw method with an Accent HL5500.

Fabrication of graphene/h-BN film

For the electrical conductivity measurement, the graphene/h-BN powders were fabricated as the film by the method reported. Poly (vinyl difluoride) (PVDF) was dissolved into N-methyl-2-pyrrolidone (NMP) to form a 0.01 g mL\(^{-1}\) homogeneous solution. The graphene and solution were mixed homogeneously (20 mg mL\(^{-1}\), and
the obtained paste was then spread on the glass substrate with a glass rod, using adhesive tapes as spacers. The films with a ca. 20 μm thickness and 1×1 cm² active area were obtained at 80 °C for 10 h.

Figure S1. SEM image of h-BN

Figure S2. Raman spectrum of Sample 4.
Figure S3. The whole XPS spectra of h-BN/graphene samples.

References: