

Abstract Submitted
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Synthesis and Characterization of Large-Area Graphene Directly CVD-Grown on h-BN¹ MINWOO KIM, YOUNG JAE SONG, MIN WANG, SEONG-KYU JANG, SUNGJOO LEE, SKKU Advanced Institute of Nanotechnology (SAINT), Sungkyunkwan University (SKKU), Suwon 440-746, Korea, WONJUN JANG, SE-JONG KAHNG, Department of Physics, Korea University, Seoul 136-713, Korea, GRAPHENE SYNTHESIS COLLABORATION, CHARACTERIZATION COLLABORATION — As an ideal substrate for graphene, hexagonal boron nitride (h-BN) has been utilized and studied extensively by transfer technique, which still has a high chance to have impurities at the graphene/h-BN interface. Here we report direct CVD growth of graphene on large area h-BN film. AFM and Raman spectroscopy measurements show that there is only one monolayer of graphene, and whose unperturbed electronic structures are also confirmed by electron transport measurements and scanning tunneling spectroscopy. High resolution TEM images for cross-section taken before and after transferring graphene/h-BN on to SiO₂ indicate this CVD-grown hybrid structure is robust enough. Based on this new method, high quality and large area graphene on h-BN film with a clean interface can be synthesized for the application of electronic devices, and can fill the missing steps to grow fully CVD-grown super-structure of graphene and h-BN.

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