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SPM Study and Growth Mechanism of Graphene Directly CVD-Grown on h-BN Film YOUNG JAE SONG, MINWOO KIM, QINKE WU, JOOHYUN LEE, SUNGJOO LEE, MIN WANG, SKKU Advanced Institute of Nano Technology (SAINT), Sungkyunkwan University (SKKU) — We present our Scanning Tunneling Microscopy (STM)/Spectroscopy (STS) and Kelvin Probe Force Microscope (KPFM) study for graphene directly CVD-grown on h-BN film. High resolution STM image shows perfect honeycomb lattice structure of graphene on top surface and Moiré pattern indicating the structural interference pattern with the underlying h-BN crystal. Non-disturbed electronic structure of graphene on h-BN film is also confirmed by spatially-resolved STS measurements, which show very sharp and symmetric V shape with a Dirac point at Fermi level. To confirm the graphene growth mechanism on h-BN film/Cu foil, careful Atomic Force Microscopy (AFM) and Kelvin Probe Force Microscopy (KPFM) measurements were performed on different thickness of h-BN film on a SiO₂ substrate to unveil the catalytic origin of graphene growth on h-BN/Cu. This research was supported by Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Korean government (MSIP) (Grant Numbers: 2009-0083540, 2011-0030046, 2012R1A1A2020089 and 2012R1A1A1041416).

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