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Direct synthesis of Graphene/Boron nitride stacked layer by CVD on Cu foil

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Recently, graphene has shown great characteristic of electrical conductivity, strength, and elasticity. However, due to edge unstable and metallic properties, it is difficult to use as a semiconductor devices. The solution of such problems has been sought a way to use the boron nitride in a stacked layer structure.

By graphene and boron nitride stacked layer structure on silicon substrate, the electron mobility is improved and deteriorated results in semiconductor properties.

In this study, to make layered structure, we developed direct synthesis method for graphene on boron nitride. By using Raman technique, the directly stacked layer structure is in good agreement with measurements on each of the attributes.

Keywords: Graphene, Boron nitride, CVD, Synthesis

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Synthesis of Hexagonal Boron Nitride along a domain of Cu foil

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Fully and partially grown hexagonal boron nitride (h-BN) on Cu foil, synthesized by chemical vapor deposition method, was studied using Raman and SEM measurements. Fully and partially grown samples were successfully made from borane-ammonia complex to controlling pressure and growth time. The fully grown h-BN and partially grown h-BN exhibits a ~ 1370 cm⁻¹ B-N vibrational mode (E_{2g}). Especially, well-aligned triangular h-BN monolayer was observed on some domain of Cu foil using SEM measurements.

Keywords: Boron nitride, CVD, Synthesis