NT-P043

The growth of graphene layers by chemical vapor deposition on copper foils

유권재[1,3], 김철기[1], 윤두희[2], 정연식[2], 서은경[3], 이상선[3], 구자용[3], 김원동[3], 황찬용[3]

[1]충남대학교 나노공학부, [2]서강대학교 물리학과, [3]한국표준과학연구원 첨단장비기술센터

Carbon as a transformer unit presents various shapes in low dimensions, such as carbon nanotubes, fullerene, and graphene of a 2D single honeycomb carbon network. Among them, the single graphene layer has recently shown many fascinating physical properties. Specifically, as a semimetal or zero-gap semiconductor, it has appeared to have ultra-high mobility, integer and half-integer quantum Hall effect and Klein tunneling which indicate Dirac fermion behavior. In addition, we expect that the creative use of these nanomaterial could lead many applications, such as FET devices, LCD transparent electrodes, and solar cells.

However, load-block in practical applications of graphene were lack of large area and mass production. In that point, recent success of chemical vapor deposition (CVD) for graphene production may be cornerstone of real applications. We succeeded in graphene growth by CVD method on copper foils. Graphene quality was characterized by Raman and SEM and transport measurements. We also found that graphene layers were controled by hydrogen gas amount.