

Sweeping graphene surface for super-clean graphene

Luzhao Sun^{1,2}

Halin Peng^{1,*}

Zhongfan Liu^{1,*}

¹ Center for Nanochemistry, Beijing Science and Engineering Center for Nanocarbons, Beijing National Laboratory for Molecular Sciences, College of Chemistry and Molecular Engineering, Peking University, Beijing 100871, P. R. China

² Academy for Advanced Interdisciplinary Studies, Peking University, Beijing 100871, P. R. China

Contact@zflu@pku.edu.cn;

hlpeng@pku.edu.cn

Abstract

Graphene synthesized by chemical vapor deposition (CVD) on Cu has shown its excellent properties on electronic and optoelectronic applications. However, the contamination is ubiquitous on CVD-derived graphene, which significantly limits the further application of high-quality graphene on high-end application[1,2]. To clean the graphene surface, here we developed a post-growth adsorption method and invented a special equipment. After the treatment of graphene on Cu foil, the cleanness of graphene is greatly improved. Thanks to less of contamination, the as-received graphene shows higher performance on electronic and optical applications.

References

- [1] Moser, J.; Barreiro, A.; Bachtold, A., *Appl. Phys. Lett.* 91 (2007) 163513.
- [2] Zhang, Z.; Du, J.; Zhang, D.; Sun, H.; Yin, L.; Ma, L.; Chen, J.; Ma, D.; Cheng, H. M.; Ren, W., *Nat. Commun.* 8 (2017) 14560.

Figures

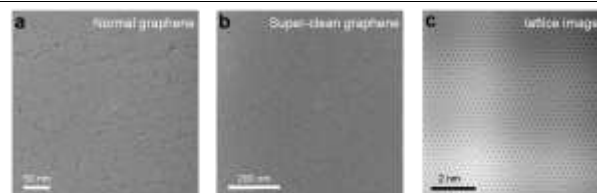


Figure 1: Efficient cleaning of graphene surface characterized by transmission electron microscopy (TEM). (a) TEM image of normal graphene sample transferred onto TEM grid. (b) TEM image of as-obtained super-clean graphene sample. (c) Lattice image of super-clean graphene.