Directly Growing Graphene Film on Quartz by Low Pressure Microwave Plasma Torch Chemical Vapor Deposition

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Abstract
Traditional methods to prepare graphene film for transparent conducting electrodes involve the wet etching of the metal catalyst and the transfer of the graphene film [1], which can degrade the film through the creation of wrinkles, cracks, or tears. The resulting films may also be obscured by residual metal impurities and polymer contaminants. The electron cyclotron resonance chemical vapor deposition (ECR CVD) method can directly grow nanographene film temperature on SiO₂ [2], but its sheet resistance is as high as 20k Ω/□. Here, it is shown that directly growing graphene film on quartz can be achieved by low pressure microwave plasma torch chemical vapor deposition (LPMPT CVD). Raman spectra (Fig. 1) can confirm 2~3 layers graphene film [3], and sheet resistance is 6k Ω/□.

References

Figures

Figure 1. Raman spectra of LPMPT-CVD graphene grown on quartz. The spectra were taken by 532 nm laser excitation.