Controllable Transfer and High Quality Nano Devices of CVD Growth Graphene Flakes with Variable Size and Shape

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We developed a special graphene transfer technology based on traditional graphene transfer process. The technology used PMMA film as a transfer template, and electron beam lithography to make patterns of different size and shape of small graphene flakes all grown on one Cu substrate by CVD process. We could transfer specific graphene flakes onto specific locations of various kinds of substrates. The transfer process resulted tiny damage to graphene itself, and remained its high quality. Quantum Hall Effect was also observed in the so-transferred graphene flake.

The technology could make electrode-deposition-free graphene devices with good electrical behavior. It could also be used to “repair” breaks and damage in graphene-based “full carbon” circuits, and pointed out a new way of “bottom up” process to manipulate graphene as building blocks in nano devices.

References

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