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# Supporting Information

## Microstructure Evolution of Diazonium Functionalized Graphene: A Potential Approach to Tune Graphene Electronic Structure

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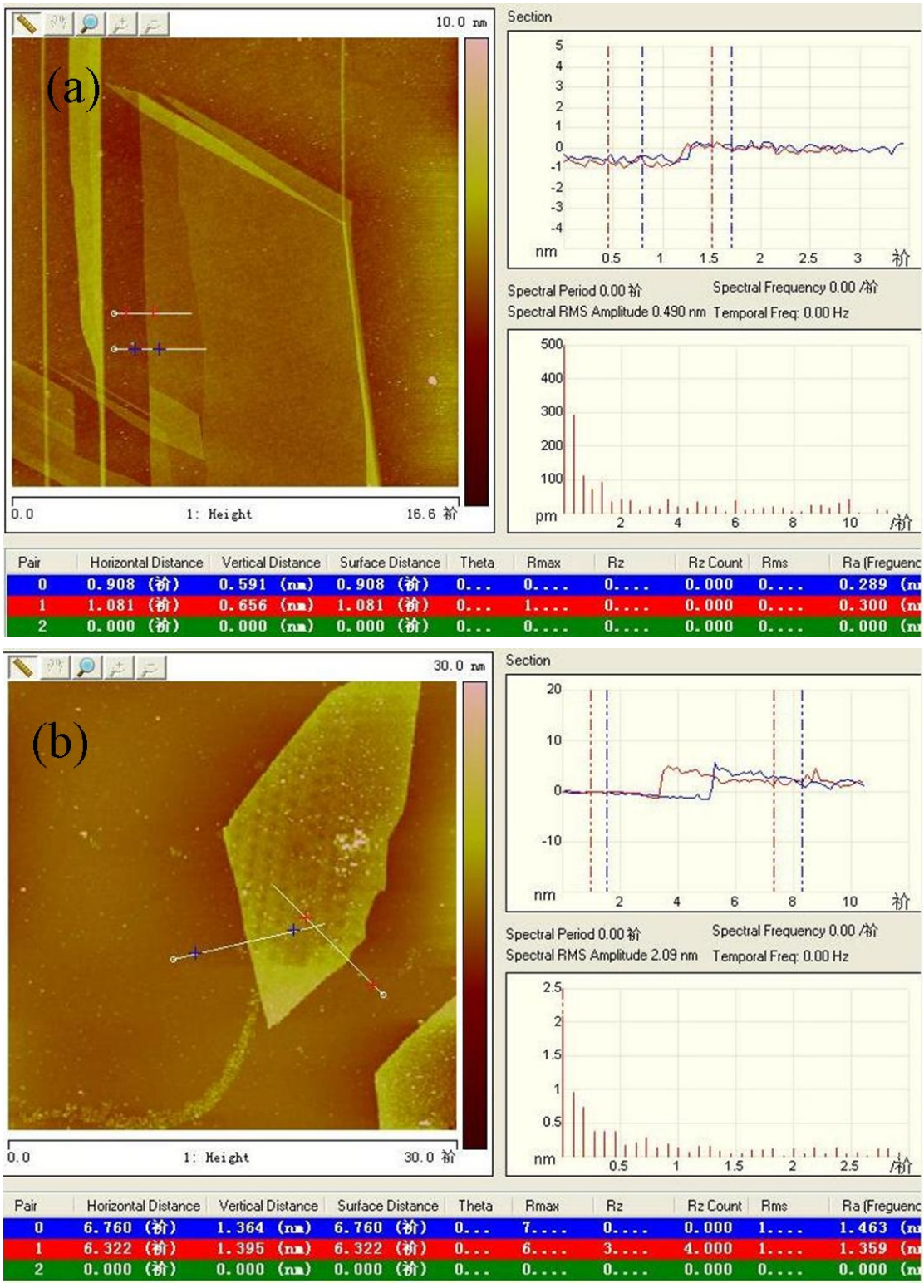



**Figure S1**. AFM height images of (a) pristine and (b) modified monolayer graphene.

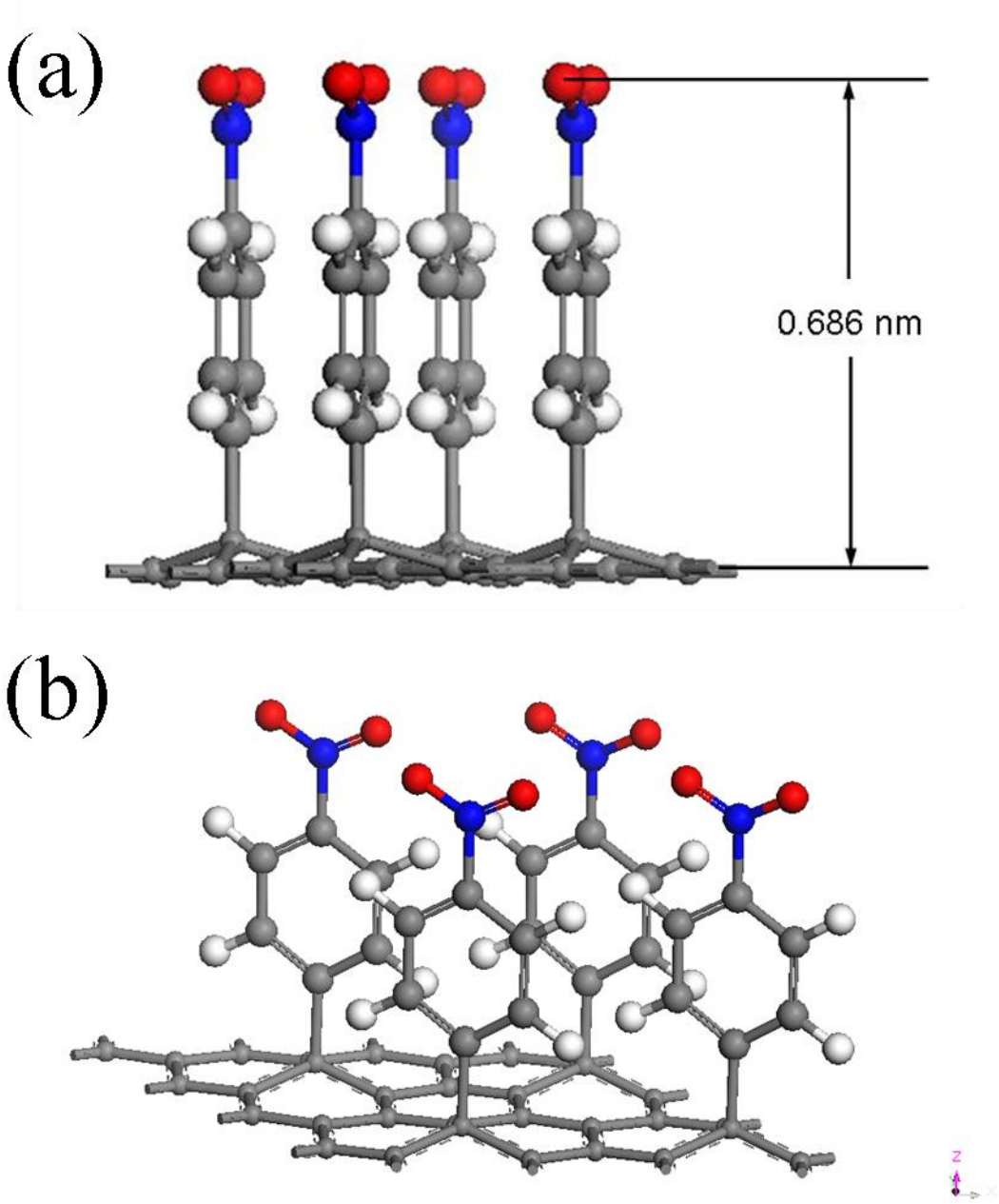
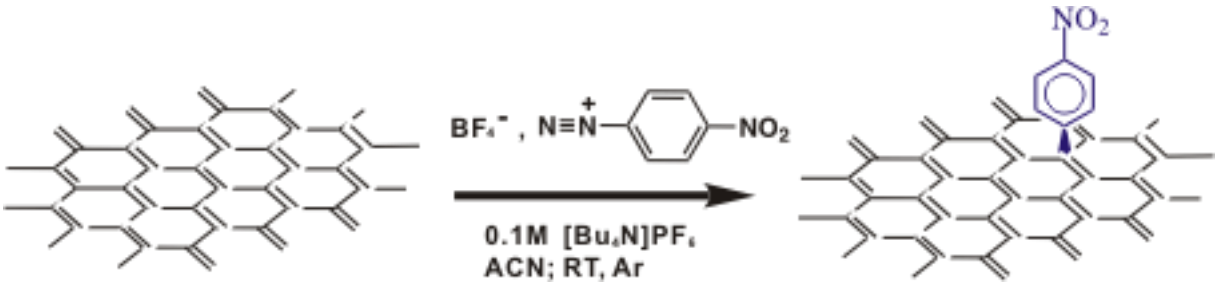



**Figure S2**. Side view of an atomic model for nitrophenyl group functionalized graphene .The grey balls represent C atoms, while the blue, red, and white ones present N atoms, O atoms, H atoms respectively.

**Table S1.** The base plane crystal lattice constant of functionalized graphene at different reaction times and different concentrations of 4-NPD

| --- | Sample 0 | Sample 1 | Sample 2 | Sample 3 | Sample 4 | Sample 5 |
|---|---|---|---|---|---|---|
| $t_{reaction}$ | ---- | 5h | 10 h | 10 h | 25 h | 25h |
| $c_{4\text{-NPD}}$ | ---- | 10 mM | 15 mM | 20 mM | 35 mM | 20 mM |
| *d* | 2.46 Å | 2.50 Å | 2.54 Å | 2.58 Å | 2.42 Å | 2.44 Å |

$t_{reaction}$ : the reaction time; $c_{4\text{-NPD}}$: the concentration of 4-NPD; *d*: the base plane crystal lattice constant of functionalized graphene.




**Scheme S1**. Reaction between Graphene and 4-nitrophenyl diazonium, the nitrophenyl groups were bonded with nearly perpendicular configuration.