

Moiré patterns arising from bilayer graphone/graphene superlattice

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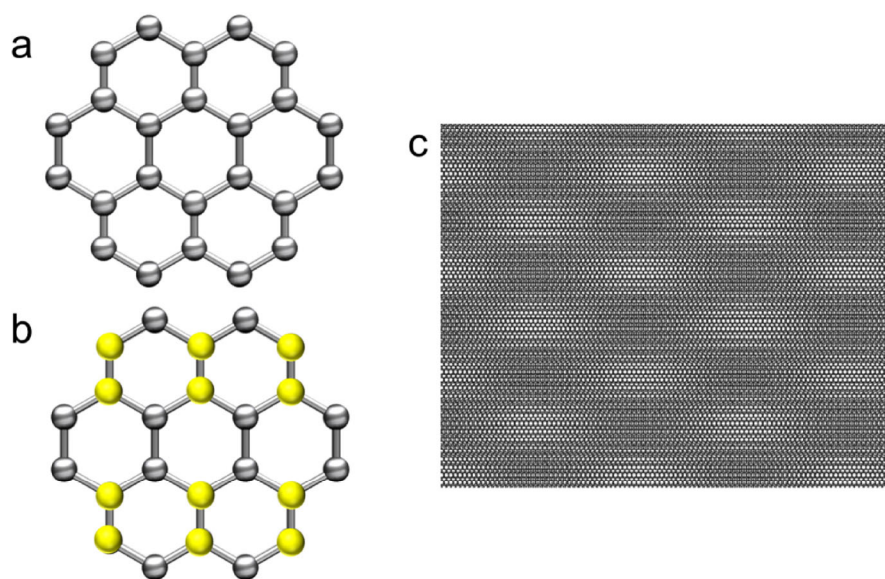


Figure S1 Schematic illustration of the graphene (a) and graphone (boat configuration) (b). The silver and yellow spheres denote the C and H atoms, respectively. (c) Simulated moiré patterns of the graphone (boat configuration)/graphene superlattice, which exhibits rectangular patterns.

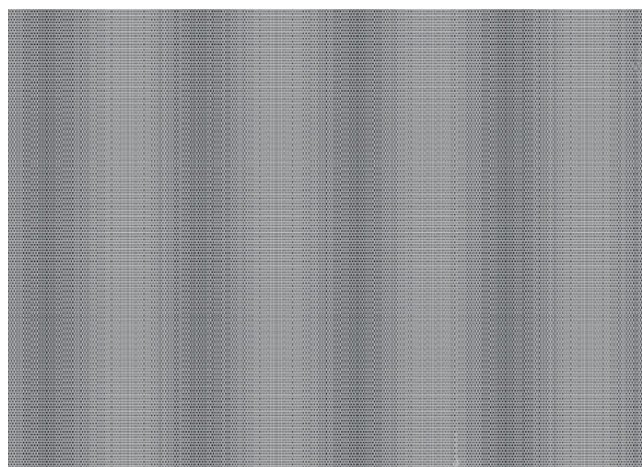


Figure S2 Simulated linear moiré patterns assuming that the upmost layer of graphone is slightly stretched compared to the bottom graphene layer.

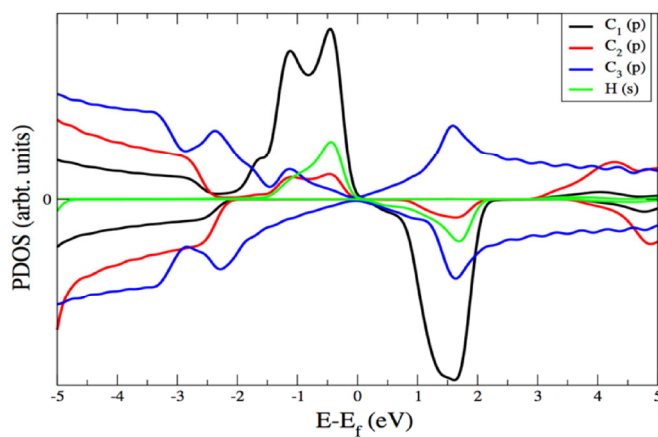


Figure S3 Projected density of states (PDOS) of graphone/graphene heterostructures with Fermi level set to zero. In the PDOS plot, C1 and C2 are carbon atoms of graphone, without and with H atoms, respectively, whereas C3 is the carbon atoms of the graphene layer.

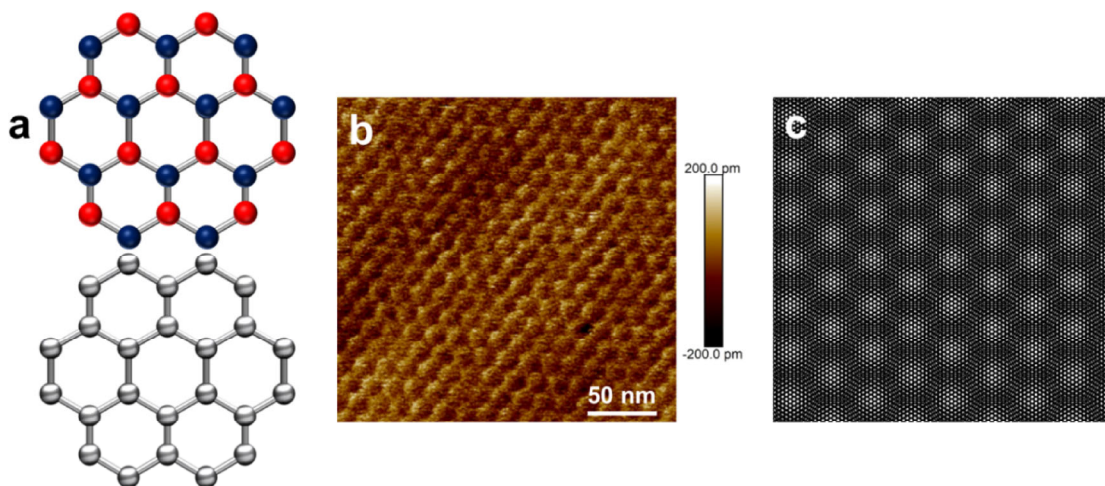


Figure S4 (a) Schematic illustration of the layer structure of top hexagonal boron nitride (hBN) and bottom graphene. Blue, red and silver balls denote B, N and C atoms, respectively. (b) The obtained AFM image of the hBN/graphene moiré pattern with zero misalignment angle, which indicates a moiré wavelength of ~14 nm. (c) Simulated moiré pattern of the hBN/graphene superlattice, displaying triangular moiré lattices.

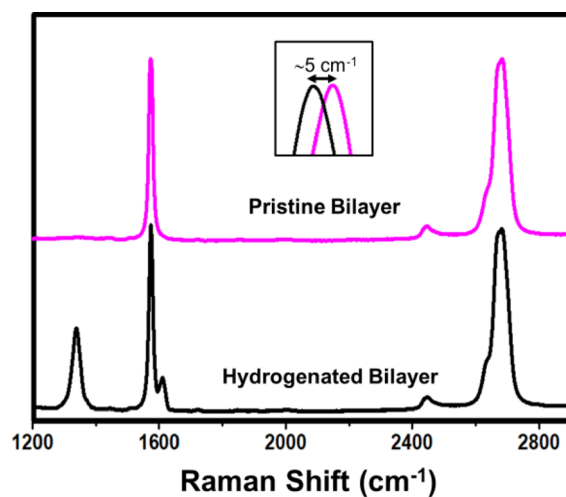


Figure S5 Raman spectrum comparison of the bilayer graphene before and after the hydrogenation process. The inserted plot shows the red-shift of the G peak after hydrogenation.