

**Supplemental Materials for “Geometric and Electronic
Structure of Multilayered Graphene: Synergy of The
Nondirective Ripples and The Number of Layers”**

Table S1. The binding energies (meV/atom) of bi-layer rippled graphene with 0.05 eV/ Å and 0.01 eV/ Å for the force.

	Force criterion (eV/ Å)	Compression ratio (%)			
		5	10	15	20
Binding energy (meV/atom)	0.05	9.929	9.345	10.345	11.129
	0.01	9.969	10.392	10.248	11.434

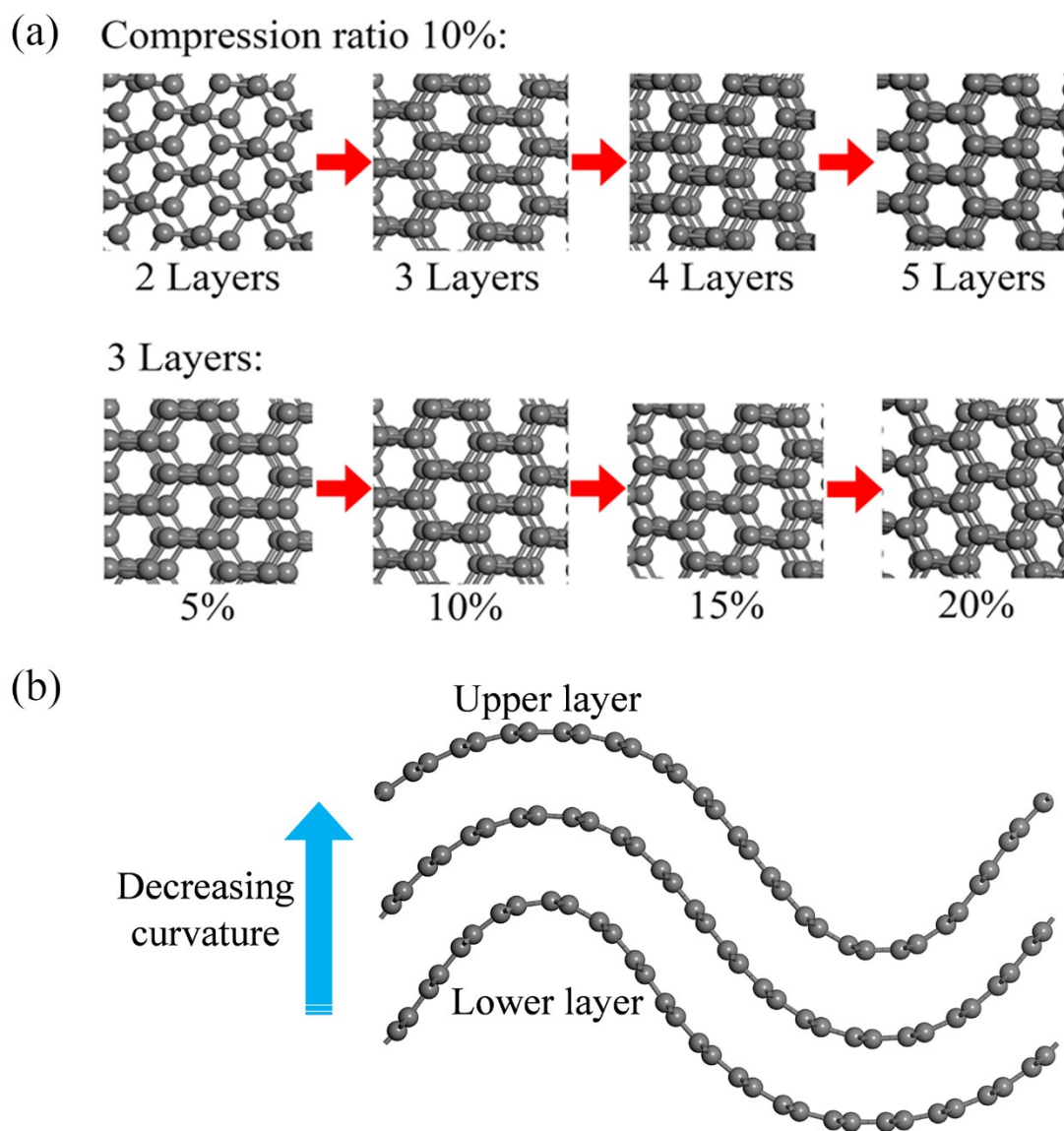


Figure S1. (a) The change of stacking modes of 2~5 layers of rippled graphene with the compression ratio of 10% (the first row) and tri-layer graphene with the compression ratio of 5%~20% (the second row). (b) The multilayered graphene with ripples is consisted of monolayer graphene with different curvature, displaying gradually decreasing curvature from the inner layer to the outer layer.

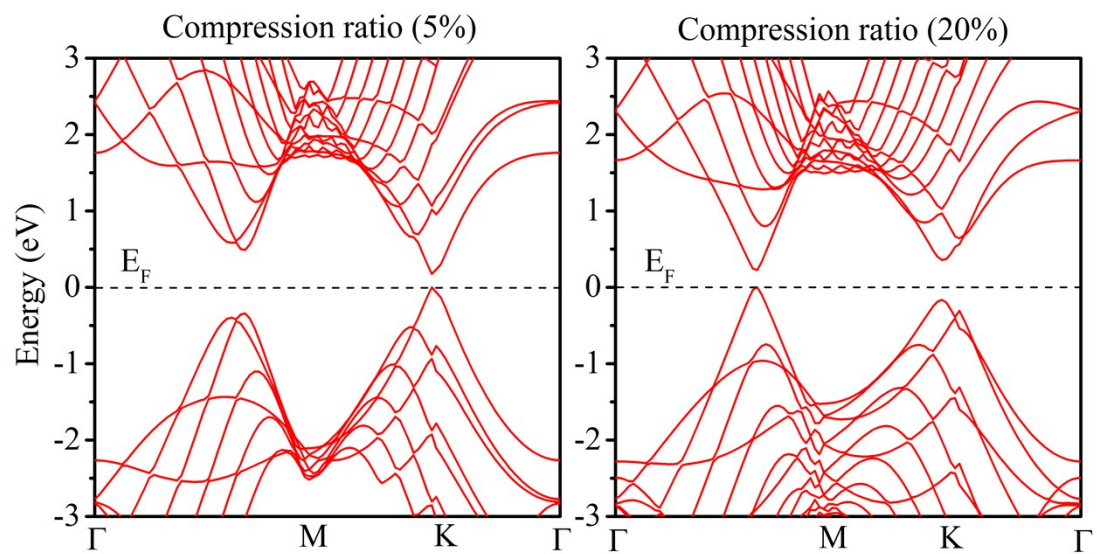


Figure S2. The band structures of monolayer rippled graphene with compression ratio of 5% and 20%.

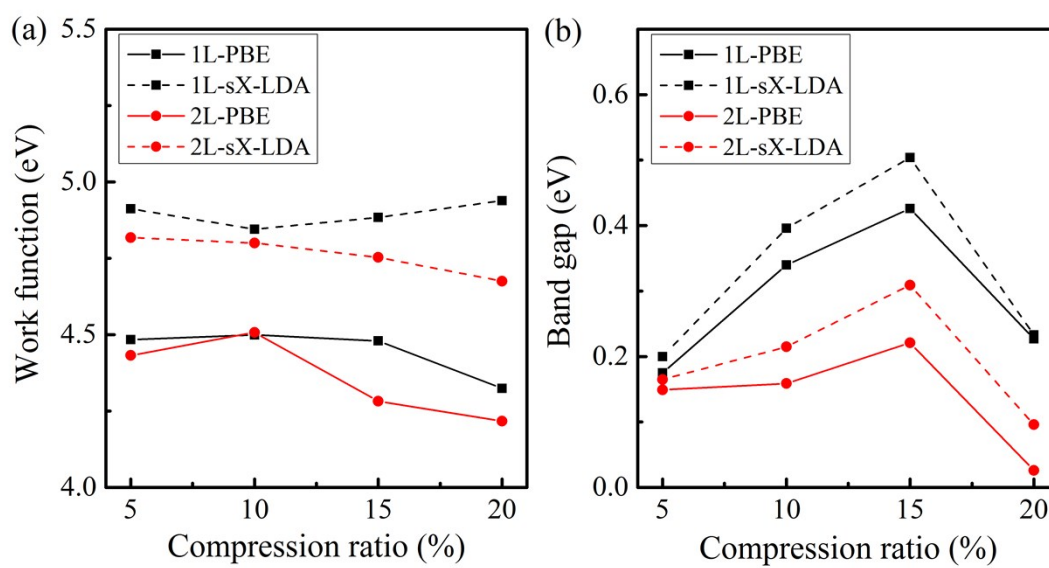


Figure S3. The (a) work function and the (b) band gap of monolayer and bi-layer rippled graphene using PBE (solid lines) and sX-LDA (dashed).

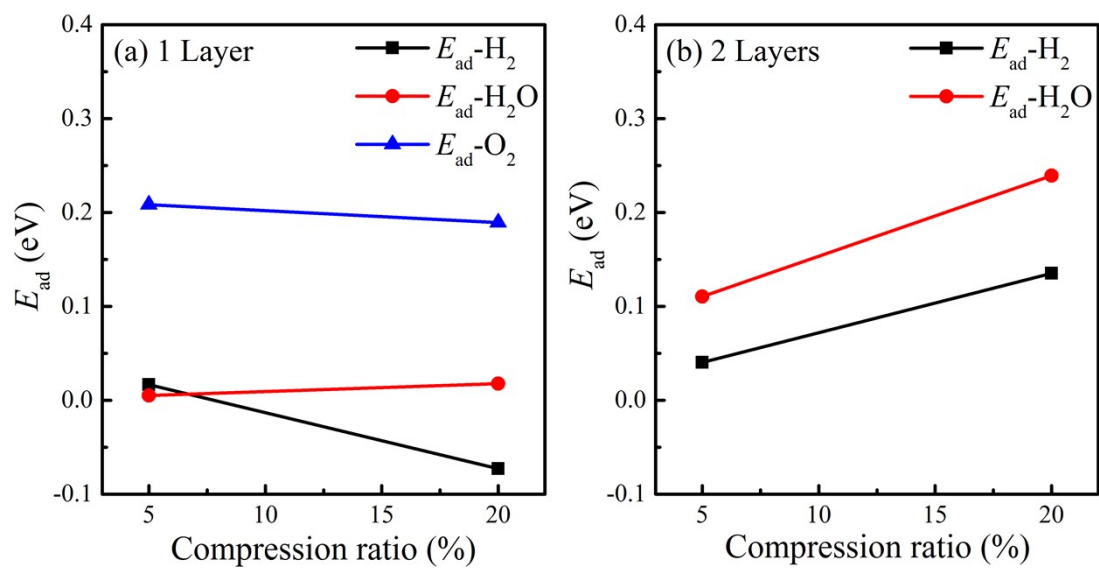


Figure S4. The adsorption energies of (a) H_2 , H_2O and O_2 on monolayer rippled graphene and (b) H_2 and H_2O on bi-layer rippled graphene.