

Supporting Information

Analyzing Dirac Cone and Phonon Dispersion in Highly Oriented Nanocrystalline Graphene

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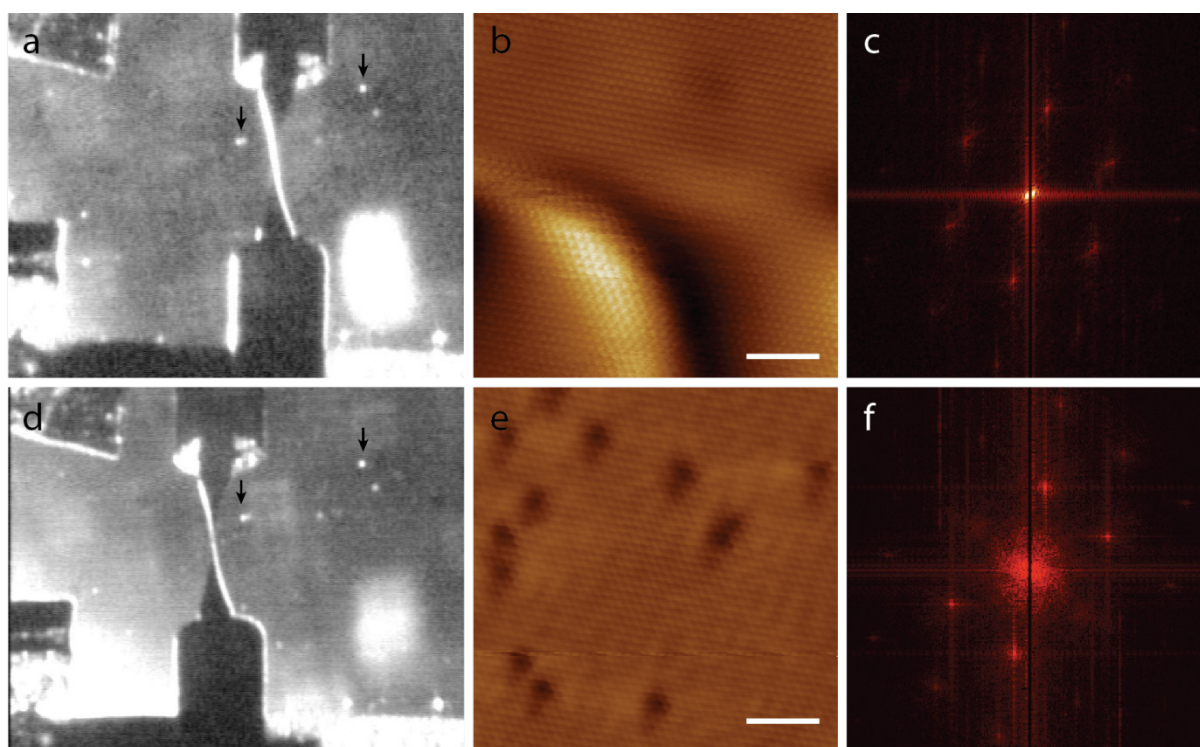


Figure S1. (a) Optical image showing the STM tip position with respect to the sample surface while scanning the (b) high magnification STM image ($V_s = -0.6$ V, $I_t = 800$ pA, $T = 77.8$ K), and (c) the corresponding FFT image of (b). (d) Optical image showing the tip at another position corresponding to the (e) high magnification STM and (f) FFT image. Distinctive surface artifacts are marked with a black arrow in (a) and (d) for comparing relative tip position between the two optical images. Distance between the two tip positions is in the range of millimeters. Scale bars in (b) and (e) are 2 nm.

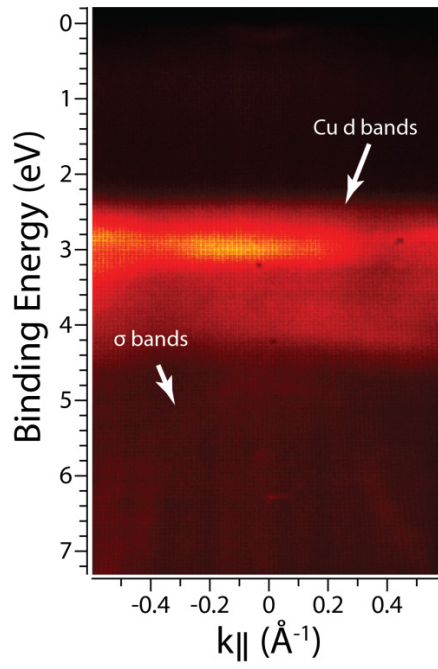


Figure S2. ARPES of Γ point of 100 nm grain size continuous MNG sample.

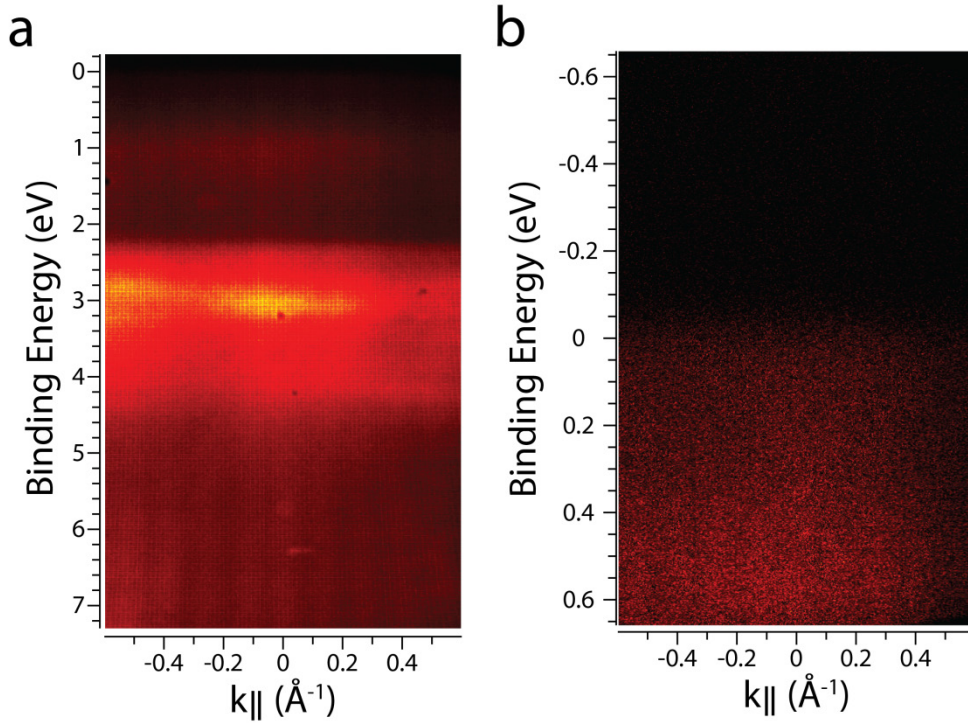
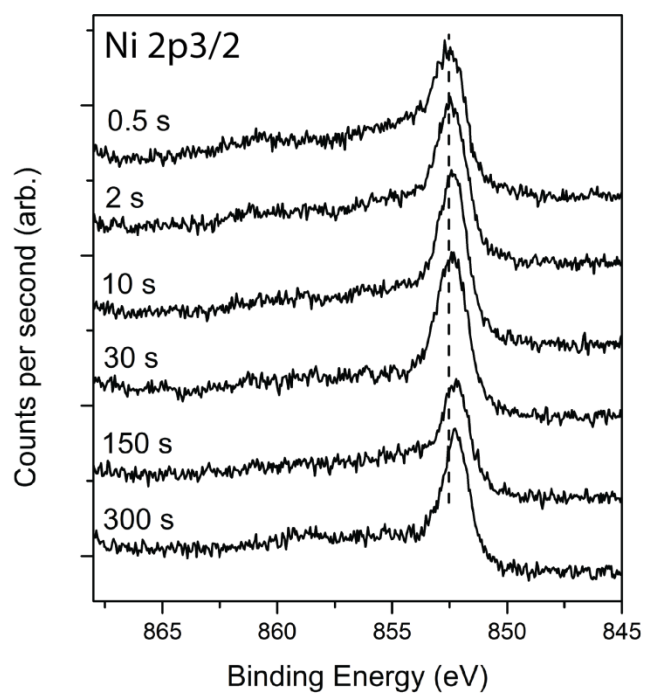


Figure S3. ARPES of Γ point of MNG islands sample (a) showing Cu d-bands and graphene σ bands and (b) near the Fermi energy showing the lack of Cu surface band.

a



b

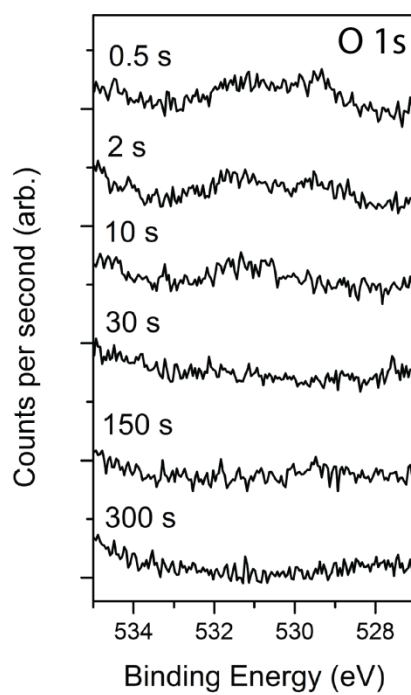


Figure S4. XPS of MNG film as a function of growth time for the (a) Ni 2p_{3/2} and (b) O 1s peaks. MNG film becomes continuous at 150 s of growth based on AFM observations.

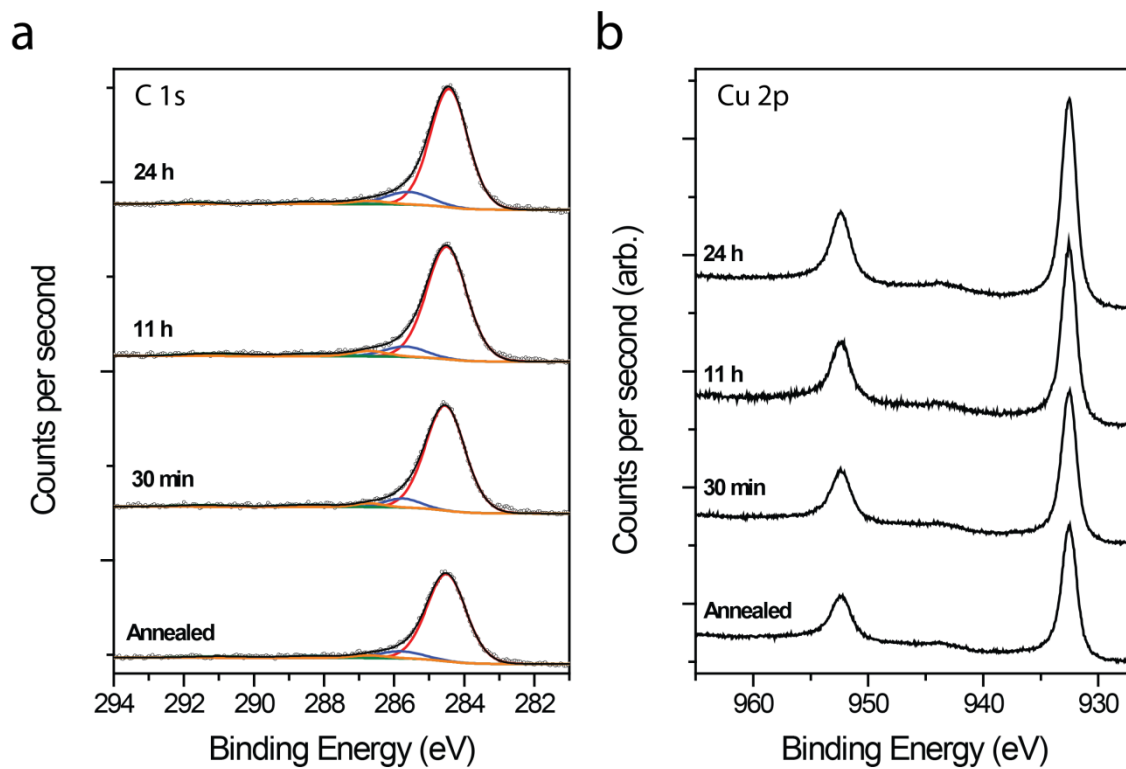


Figure S5. XPS of the graphene film before and after different durations of ambient exposure at the (a) C 1s peak, and (b) Cu 2p.