Twisting the height away

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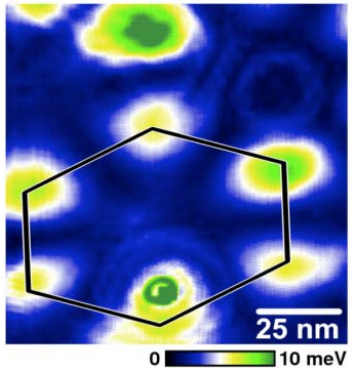
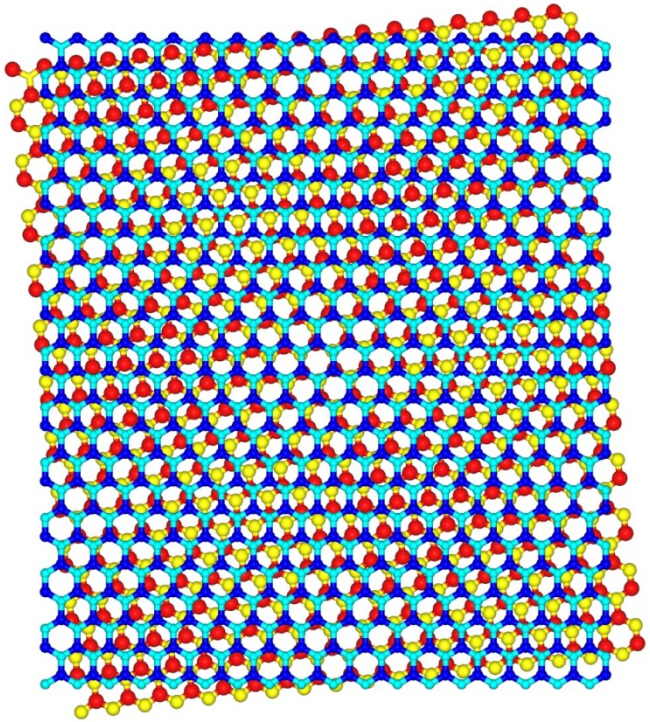


Real space energy-gap map as observed through scanning tunneling spectroscopy and explained by our theory. (Data: B=8T, GT/NIST-CNST graphene collaboration.)



Moiré pattern of a twisted graphene bilayer, modeled in our theory by a periodic effective mass and scalar+vector potentials.

Multilayer graphene grown at Georgia Tech to heights of 1 to 10 nanometers contains non-graphitic "twists" between layers. Our recent theory describes the top layer as a single, effectively *isolated* graphene sheet. The remaining multilayer creates a periodically varying *mass* of the top-layer electrons: from positive, to zero, to negative(!). This makes intuition from single-layer graphene available for the analysis of twisted multilayer graphene, and predicts a regular pattern in the electronic structure that has been observed in experiments from our GT/NIST collaboration.

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