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Synthesis of Bilayer and Trilayer Graphene with Different Stacking Orders LUYAO ZHANG, ANYI ZHANG, BILU LIU, HAN-WEN CHENG, CHONGWU ZHOU, University of Southern California, USC TEAM — We report the growth of bilayer and few layer graphene with different multilayer morphologies and stacking orders. The synthesis was performed by ambient pressure chemical vapor deposition at low methane concentrations. The shape of the monolayer graphene region was hexagon. The few layer graphene regions had different shapes either in the center or at the edge of the monolayer. The grain size of the hexagonal graphene was enlarged with Cu foil pretreatment and annealing. Raman spectra and selected area electron diffraction at the few layer graphene regions revealed the stacking order. Under different growth conditions, both Bernal and twisted stacking order were observed, and different growth mechanism was proposed.

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