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Physical and electrical properties of graphene folds grown by Chemical Vapor Deposition WENJUAN ZHU, TONY LOW, YU ZHU, AGEETH BOL, HUGEN YAN, XUESONG LI, YU-MING LIN, YANQING WU, FENGNIAN XIA, VASILI PEREBEINOS, PHAEDON AVOURIS, IBM T.J. Watson Research Center — We found that there is a large density of wrinkles on CVD graphene transferred to a SiO_2/Si substrate. At these graphene wrinkles, the SEM signal intensity is lower, the AFM height is higher, and the Raman G-band intensity is stronger as compared to the surrounding single-layer graphene, due to extra layers of graphene at the wrinkles. TEM images confirmed that wide wrinkles are folds instead of ridges. The channel resistance near the Dirac point along graphene folds is significantly lower than the resistance without folds. However, as the gate field or the carrier density is increased, the difference between graphene channel along the fold and without the fold is reduced, due to carrier screening.

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