Abstract Submitted
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Positive magnetic susceptibility in graphene JOEL THERRIEN, KYLE TWAROWSKI, U. Massachusetts Lowell — Magnetic force microscopy imaging of exfoliated graphene on oxidized silicon substrates was performed. In the magnetic force domain, an attractive force was observed whenever the magnetized tip was over a graphene sample on the substrate. Were the graphene showing diamagnetism as seen in HOPG, the observed force would have been repulsive. No attractive potential was observed on the graphene-free regions. The same regions were also scanned with a non-magnetic probe to check for possible electrostatic forces. None were found. Following up on these measurements, a flake of graphene was placed on the end of a tipless AFM cantilever. Using the AFM to measure any deflections in the cantilever, a magnetic field was applied with measureable deflections observed. ICP-MS analysis of the source graphite revealed magnetic impurities on the level of 8ppm. These results will be discussed in relation to defects within the graphene.

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