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Magnetic Tunnel Junctions with a Graphene Tunnel Barrier
WAN LI, DANIEL RALPH, Cornell University — We have fabricated ferromagnet/graphene/ferromagnet (FM/Gr/FM) junctions in which current flows vertically so that the graphene acts as a single-atom-thick barrier. In contrast to previous work, we utilize a fabrication process that avoids oxidation of the magnetic electrodes. We measure typical resistance-area products significantly lower than previously reported. We will present an analysis of whether this difference is due to the absence of a magnetic oxide or to defects in the graphene. We will also discuss the magnetoresistance of these devices, and how both the resistance and the magnetoresistance depend on the quality of the graphene.

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