

Abstract Submitted  
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**Fabrication of gated suspended graphene devices** KIRILL BOLOTIN, MARTIN KLIMA, KENNETH SIKES, GEOFF FUDENBERG, JAMES HONE, PHILIP KIM, HORST STORMER, Columbia University — We find that graphene acts as a catalyst for the vapor-phase etch of silicon dioxide: silicon dioxide under graphene is etched much faster compared to the bare surface. This is consistent with the presence of a trapped water layer between graphene and the silicon dioxide substrate which accelerates etching of the substrate. This unusual property allows us to fabricate devices where a large-area graphene flake is suspended over a micron-sized trench with the unetched silicon substrate serving as a gate electrode. Electronic transport in the resulting devices suggests enhanced sample mobilities near the Dirac point.

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