

Abstract Submitted  
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**Electrostatic Manipulation Of Graphene On Graphite**<sup>1</sup> CARLOS UNTIEDT, CARMEN RUBIO-VERDU, GIOVANNI SAENZ-ARCE, JESÚS MARTINEZ-ASENCIO, DAVID C. MILAN, Universidad de Alicante, Spain, MOHAMED MOAIED, JUAN J. PALACIOS, Universidad Autonoma de Madrid, MARIA JOSE CATURLA, Universidad de Alicante, Spain — Here we report the use of a Scanning Tunneling Microscope (STM) under ambient and vacuum conditions to study the controlled exfoliation of the last layer of a graphite surface when an electrostatic force is applied from a STM tip. In this work we have focused on the study of two parameters: the applied voltage needed to compensate the graphite interlayer attractive force and the one needed to break atomic bonds to produce folded structures. Additionally, we have studied the influence of edge structure in the breaking geometry. Independently of the edge orientation the graphite layer is found to tear through the zig-zag direction and the lifted layer shows a zig-zag folding direction. Molecular Dynamics simulations and DFT calculations have been performed to understand our results, showing a strong correlation with the experiments.

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