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**Strain Effects in Graphene Transport Measurements on Micropatterned Substrates**[1] J. HENRY HINNEFELD, STEPHEN GILL, NADYA MASON, University of Illinois at Urbana-Champaign — Since its initial isolation in 2004, graphene has been the subject of intense study due to its extraordinary electrical and mechanical properties. However, the interplay between these properties remains comparatively unexplored. Here we present transport and scanning probe microscopy measurements of graphene devices on micropatterned substrates, where the interactions between surface adhesion, mechanical strain, and electrical conductivity can be observed. We find a positive correlation between strain applied via the substrate and electrical resistivity, and explore the mechanisms responsible for this increase, including surface delamination, microcrack formation, and mechanical strain in the graphene lattice structure, using atomic force microscopy measurements.

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