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Control of commensuration between graphene and boron nitride MATTHEW YANKOWITZ, University of Arizona, K. WATANABE, T. TANIGUCHI, National Institute for Materials Science, PABLO SAN-JOSE, Instituto de Ciencia de Materiales de Madrid, BRIAN J. LEROY, University of Arizona — The electronic properties of van der Waals (vdW) heterostructures can be controlled through the choice and ordering of materials, as well as through the relative rotation between the atomic layers. However, little has been done to directly control the interactions between these layers, which may act as another tunable degree of freedom in these systems. Here, we demonstrate the ability to control the interlayer interaction strength between graphene and boron nitride using pressure resulting from the vdW interaction of a nearby STM tip. In particular, controlling the relative layer separation dynamically modifies the adhesion-induced strains in the graphene as it forms a partially commensurate structure with the boron nitride.

Matthew Yankowitz
University of Arizona

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