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Band Engineering in C/BN Super-stripes JEFFREY MULLEN, MARCO BUONGIORNO-NARDELLI, North Carolina State University — Using electronic structure calculations from first principles, we have studied the electronic characteristics of graphene/BN sheets in a planar "super-striped" geometry. Similarly to Hydrogen-terminated graphene nanoribbons, also C/BN super-stripes show a variation of band gaps associated with the stripe size. Moreover, the bonding with BN introduces confinement effects that can be potentially exploited to enhance the electronic transport properties of these systems. We have characterized these effects by evaluating the band offsets and the electrostatic potential profile across the super-stripe structures.

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