

Abstract Submitted
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Modification of Electronic Band Structure in $mL+nL$ Free-Stacking Graphene¹ RUI HE, University of Northern Iowa, JIANTING JI, YINGHAO JIE, ANMIN ZHANG, XIAOLI MA, LINJING PAN, LE WANG, LIYUAN ZHANG, QING-MING ZHANG, Renmin University of China — We studied stacked $mL+nL$ ($m=1, 2$; $n=1-5$) graphene layers using Raman spectroscopy. Our results indicate that the 2D band from stacked graphene can be considered as a superposition of those from the constituent nL and mL graphene layers, and a blueshift in the 2D band is observed when n or $m = 1$. The blueshift increases with the number of stacked layers. This is ascribed to the reduction of Fermi velocity in the single layer graphene. As the number of stacked layers changes from 1 to 5, the Fermi velocity in the single layer graphene reduces to about 85% of its initial value. This study provides a convenient way to realize the modification of Fermi velocity in graphene and is of significance to the applications of graphene-based heterostructures.

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