Twisted Graphene Nanostructures

SATRIO GANI, YUDISTIRA VIRGUS, ENRICO ROSSI, College of William and Mary — Recent advances in fabrication techniques have made possible the realization of graphene nanostructures with atomic precision. Some of the nanostructures realized are completely novel. We study the electronic properties of such novel graphene nanostructures when deposited on two dimensional crystals. In particular we study the case when the two dimensional crystal is graphene, or bilayer graphene. We obtain results for the nanostructure electronic spectrum and find how the spectrum is affected by the coupling between the nanostructure and the two-dimensional substrate. In particular we study how the “twist” angle between the graphene nanostructure and the two-dimensional crystal affects the spectrum of the nanostructure.

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