

Abstract Submitted
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Bilayer Graphene AARON WINN, ANDREW JIAO, MATTHEW WALKER, JOHN MAIER, JUAN VELASCO, JEFFREY TEO, UVA — We study the electronic properties of bilayer graphene under an electric and magnetic field. We introduce an alternating electric potential and use a cylindrical geometry to study periodic boundary conditions using the tight-binding model. The potential induces one dimensional exponentially localized chiral channels for electron transport located at the potential interface. Analytical solutions were found in the continuum limit, and perturbation theory was applied to calculate inter-wire coupling when we considered a two-wire system. Finally, a magnetic field perpendicular to the graphene was added to demonstrate Landau levels and to perturb bilayer graphene with a strong parallel electric field.

Juan Velasco Barboza
Univ of Virginia

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