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【102】 Thermodynamic transport fingerprints in Twisted monolayer-bilayer graphene

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Twisted monolayer-bilayer graphene (TMBG) exhibits renormalized nearly flat bands harboring various exotic physical phenomena. Stacking an additional monolayer graphene on the TMBG paves a new way to extract single particle bandgap, the charge neutrality point (CNP) gap and bandwidth. The Dirac cone in the decoupled monolayer graphene serves as a perfect chemical potential sensor when the Landau levels (LLs) cross the bands, whereas the LLs are well separated and are not hybridized with flat bands. At D=0.53V/nm, the isospin flavor symmetry-broken correlated gap at flat-band filling ν=1 is largest and bandwidth is narrowest. This is a versatile tool which can be used in various similar systems to find thermodynamic properties.

Theoretical Work

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