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Interaction-induced gapped state in charge neutral bilayer graphene

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Bilayer graphene (BLG) at the charge neutrality point (CNP) possess instability to electronic interactions, and is expected to host a ground state with spontaneously broken symmetries. Within this regime, I will discuss our transport spectroscopy measurements using high quality suspended BLG samples. We observe an insulating state at CNP with a gap ~ 2 meV, which can be closed by finite doping or a perpendicular electric field of either polarity. For magnetic field $B > 1$ T, the gap increases linearly with B . Our work contributes towards understanding the rich interaction-driven physics in BLG. Finally, latest progress on transport spectroscopy measurements of Landau level gaps in these high quality samples will also be discussed.