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Nonlocal transport in dual-gated bilayer graphene YUYA SHIMAZAKI, MICHIHISA YAMAMOTO, Department of Applied Physics, University of Tokyo, KENJI WATANABE, TAKASHI TANIGUCHI, Advanced Materials Laboratory, National Institute for Materials Science, SEIGO TARUCHA, Department of Applied Physics, University of Tokyo — We report nonlocal transport measurement of biased bilayer graphene. Dual gated bilayer graphene Hall bars sandwiched between two h-BN insulating layers were prepared using the transfer technique with PMMA thin flims. We measured both local and non-local transport at temperatures between 1.5 K and 200 K. We found enhancement of the nonlocal resistance near the charge neutrality point when we increase the perpendicular electric field. Observed nonlocal resistance at 70K is much larger than what is expected as the Ohmic contribution from van der Pauw formula with measured local resistivity. This observation indicates additional contribution to the nonlocal transport in biased bilayer graphene. We present temperature and displacement field dependence of the nonlocal resistance and discuss its origin in terms of valley Hall effect and transport through disordered edge states.

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