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A boron nitride - graphene - C_{60} heterostructure CLAUDIA OJEDA-ARISTIZABAL, UC Berkeley, ELTON J.G. SANTOS, Department of Chemical Engineering, Stanford University, SEITA ONISHI, UC Berkeley, HAIDER RASOOL, UC Berkeley, Center of Integrated Nanomechanical Systems, University of California, Berkeley, JAIRO VELASCO JR., SALMAN KAHN, UC Berkeley, AIMING YAN, UC Berkeley, Materials Sciences Division, Lawrence Berkeley National Laboratory, ALEX ZETTL, UC Berkeley, Materials Sciences Division, Lawrence Berkeley National Laboratory, Kavli Energy NanoSciences Institute at UC Berkeley — We have fabricated a new van-der-Waals heterostructure composed by BN/graphene/C_{60}. We performed transport measurements on the preliminary BN/graphene device finding a sharp Dirac point at the neutrality point. After the deposition of a C_{60} thin film by thermal evaporation, we have observed a significant n-doping of the heterostructure. This suggests an unusual electron transfer from C_{60} into the BN/graphene structure. This BN/graphene/C_{60} heterostructure can be of interest in photovoltaic applications. It can be used to build devices like p-n junctions, where C_{60} can be easily deposited in defined regions of a graphene junction by the use of a shadow mask. Our results are contrasted with theoretical calculations.

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