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Fabrication and characterization of graphene/MoS_2 heterojunctions AMELIA BARREIRO, CHUL-HO LEE, INANC MERIC, LEI WANG, JAMES HONE, KEN SHEPHARD, PHILIP KIM, Columbia University — We have fabricated graphene/MoS_2 /graphene co-laminated heterojunctions using a micromechanical manipulation technique. In order not to mask the transport properties of the heterojunctions, ohmic contact resistances need to be established. With the purpose of avoiding the formation of a Schottky barrier between the metal electrode and the MoS_2, different metals with work functions lower than the MoS_2 are tested. Once having obtained ohmic contacts, we are able to access the intrinsic transport properties of the heterojunctions and form Schottky diodes at the interface of the two layered materials. We will discuss the implications of the stacked heterojunction geometry to build novel transistors.

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