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Metal Electrode Effect on Electronic Transport through Graphene CHENG GONG, WEICHAO WANG, GEUNSIK LEE, BIN SHAN, KYEONGJAE CHO, Department of Materials Science and Engineering, The University of Texas at Dallas — Metal-graphene contact is one of key issues in graphene-based device applications. In this work, electronic transport through metal/graphene/metal end-contact structures with zigzag interface is investigated by first-principles non-equilibrium Green's function method. Double-dips transmission characteristics in Palladium/Graphene/Palladium are observed with a common positive dip and varied negative dips for graphene of different lengths. Transmission through the structure is suppressed by mode mismatch among different carbon localities perturbed by interface hybridization, yet intensities of the suppression at two dips are featured by distinctive channel potential profiles. Finite transmissions at Fermi level are attributed to both evanescent and propagating modes. This study benefits the understanding of the origins of contact resistance at metal/graphene interfaces.

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