

Abstract Submitted
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Chemical Doping and Electron-Hole Conduction Asymmetry in Graphene Devices ROKSANA GOLIZADEH MOJARAD, Purdue University, DAMON FARMER, VASILI PEREBEINOS, YU-MING LIN, GEORGE S. TULEVSKI, JAMES C. TSANG, ALI AFZALI, PHAEDON AVOURIS, IBM T.J. Watson Research Center — We investigate polyethylene imine and diazonium salts as stable, complementary dopants on graphene. Transport in graphene devices doped with these molecules exhibits asymmetry in electron and hole conductance. The conductance of one carrier is preserved, while the conductance of the other carrier decreases. Simulations based on nonequilibrium Green's function formalism suggest that the origin of this asymmetry is imbalanced carrier injection from the graphene electrodes caused by misalignment of the electrode and channel neutrality points.

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