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**Controlling plasmon propagation in graphene using electrostatic local gates** SAI S SUNKU, REBECA RIBEIRO-PALAU, ERIK F YOUNG, Columbia Univ, LOAN T LE, NG Next, CORY R DEAN, Columbia Univ, DIMITRI N BASOV, Columbia Univ, UC San Diego — Compared to plasmons in traditional noble metals, plasmons in graphene have an inherent advantage in that they can be tuned by an external gate voltage. Several theoretical proposals have incorporated this idea to design electrostatic gates that produce a spatially inhomogeneous conductivity and allow unprecedented control over plasmon propagation. In this talk, we will present the fabrication of two such local gate structures. The first design aims to realize a tunable plasmonic reflector by using a metallic carbon nanotube as an ultranarrow gate. The second design consists of a pair of metal gates separated by a narrow slit, allowing the formation of a narrow p-n junction. Preliminary data from scanning near-field optical microscopy (SNOM) will also be presented.

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