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Pulsed current-voltage measurements of GFETs[1] INANC MERIC, CORY DEAN, ANDREA YOUNG, PHILIP KIM, KENNETH SHEPARD, Columbia University — Pulsed current-voltage measurements are used to measure high-bias characteristics of graphene field-effect transistors (GFET). In contrast to standard DC measurements, current saturation for channel lengths as small as 100 nm is observed when measured by this method. Our results indicate that hot carrier injection into traps in the gate oxide masks saturating characteristics in standard DC measurements. Devices exhibit constant transconductance and output conductance with scaling channel length, despite a variation in low field mobility, supporting a velocity saturation model due to optical phonon scattering.

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