

Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Ultra-Short Channel Graphene Devices M.JAVAD FARROKHI, MATHIAS J. BOLAND, ABHISHEK SUNDARARAJAN, DOUGLAS R. STRACHAN, Univ of Kentucky — Measurements and modeling of ultra-short nano-electronic devices consisting of metallic electrodes and graphene channels are presented. We will discuss the novel formation and characterization of these devices. The short channel of the devices permits the observation of high-field effects. This includes current saturation that has relevance to future size-scaling of atomically-thin nano-electronics in the sub-10 nm regime. Unusual features in the current-voltage characteristics are explained by an analytical ballistic model. In addition, we investigate the effect of contact induced energy level broadening of the electrodes and contact resistance on the current saturation.

M.Javad Farrokhi
Univ of Kentucky

Date submitted: 14 Nov 2014

Electronic form version 1.4