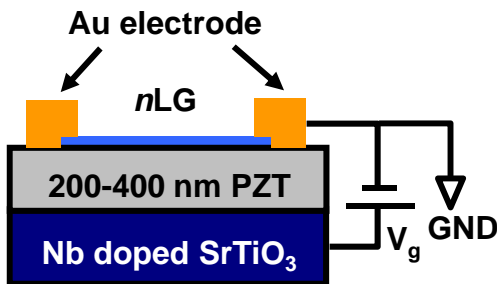
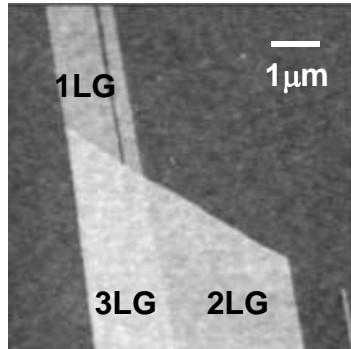


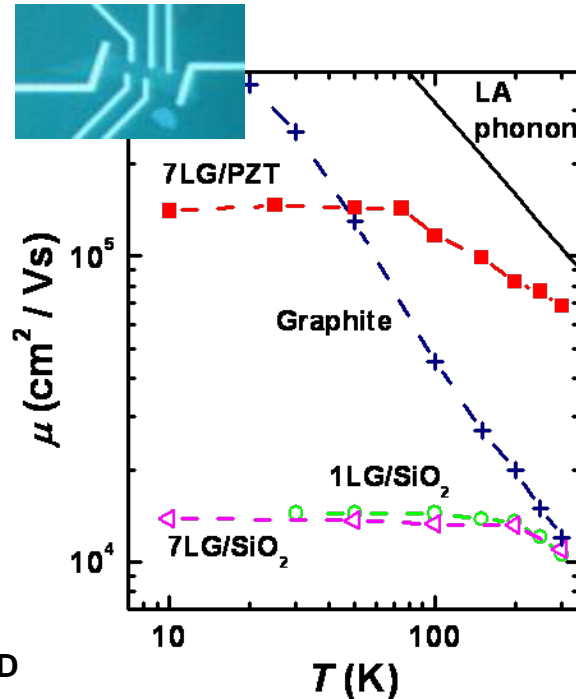
High Mobility Graphene FETs with Ferroelectric Gate Oxide

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AFM image of n LG on a PZT substrate



Schematics of PZT-gated n LG



Electron mobility in SiO₂ and PZT-gated FLG and 1LG FETs. Upper left: 7LG/PZT FET made with e-beam lithography and metal deposition.

Electron mobility in graphene FETs is limited by extrinsic scattering sources related to the SiO₂ substrate.

We have fabricated few-layer graphene (FLG) FETs on epitaxial ferroelectric oxide, Pb(Zr,Ti)O₃ (PZT). These devices show a 10-fold increase in mobility compared to SiO₂-gated graphene FETs, approaching the intrinsic limit set by longitudinal acoustic (LA) phonon scattering at room temperature. Our results open up a new route for realizing high performance carbon based electronic devices.

X. Hong et al., *Phys. Rev. Lett.* **102**, 136308 (2009).