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## Ferroelectric field-effect transistors based on solution-processed electrochemically exfoliated graphene

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### Abstract

Memories based on graphene that could be mass produced using low-cost methods have not yet received much attention. Here we demonstrate graphene ferroelectric (dual-gate) field effect transistors. The graphene has been obtained using electrochemical exfoliation of graphite. Field-effect transistors are realized using a monolayer of graphene flakes deposited by the Langmuir-Blodgett protocol. Ferroelectric field effect transistor memories are realized using a random ferroelectric copolymer poly(vinylidene fluoride-co-trifluoroethylene) in a top gated geometry. The memory transistors reveal ambipolar behaviour with both electron and hole accumulation channels. We show that the non-ferroelectric bottom gate can be advantageously used to tune the on/off ratio.

Keywords: Electrochemically exfoliated graphene, ferroelectric, field-effect transistor, memory, graphene

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