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Graphene NanoElectroMechanical Oscillator CHANGYAO CHEN, VIKRAM DESHPANDE, SUNWOO LEE, PHILIP KIM, JAMES HONE, Columbia University — Graphene based NanoElectroMechanical Systems (NEMS) working in Radio Frequency (RF) regime possess considerable advantages own to the remarkable electrical and mechanical properties of this atomic thin material. Here we demonstrated self-sustained nanoelectromechanical oscillator made from graphene. Our recent developed transduction scheme enables the direct conversion from mechanical motion to electrical domain, then subsequently being fed back to the system as excitation. The absence of extra RF actuation and the stable performance shows the possibility of practical application of graphene oscillator, for example, as signal filters, mass sensors or timing devices.

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