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Self-sustained graphene mechanical oscillators CHANGYAO CHEN, SUNWOO LEE, VIKRAM DESHPANDE, PHILIP KIM, JAMES HONE, Columbia University — Graphene poses excellent electrical and mechanical properties, therefore it is the most promising candidate for NanoElectroMechanical Systems. Recent developments of its CVD synthesis and fabrications makes the large scale integration for Radio Frequency (RF) applications possible. In this talk, I will present the structure and characteristics of self-sustained graphene mechanical oscillators, discuss the frequency tuning, and their phase noise performance, as well as low temperature behaviors. The demonstrated voltage controlled oscillators made from graphene pave the pathway for next generation on-chip integration of RF NEMS front-end.

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