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High frequency graphene resonators[1] KEVIN FISCHER, BRITT BAUGHER, TCHEFOR NDUKUM, PABLO JARILLO-HERRERO, Massachusetts Institute of Techology — We study mechanical resonance properties of suspended graphene devices through radio frequency electromechanical downmixing techniques. Taking advantage of graphene's atomically thin nature, unusually large transconductance, and extremely high Young's Modulus, we have fabricated high-frequency suspended graphene resonators. Our global-gate devices have resonated at over 500MHz in a low temperature environment with reasonable quality factors. This research will pave the way for high-quality resonators in the GHz regime which will be used in high frequency applications such as ultra high sensitive mass, chemical and charge detectors.

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