Abstract Submitted
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Detecting high-frequency gravitational waves with optically-levitated sensors.[1] ZHIYUAN WANG, GEORGE WINSTONE, NANCY AGGARWAL, Northwestern University, MAE TEO, Stanford University, MASHA BARYAKHTAR, New York University, SHANE LARSON, VICKY KALOGERA, ANDREW GERACI, Northwestern University — Optically-trapped and cooled micro-scale sensors within a cavity can be used to detect gravitational waves in the ˜10kHz to ˜300kHz band, which is beyond the optimal sensitivity range of other experiments like LIGO. The levitated sensors can search for binary coalescence of sub-solar-mass primordial black holes, the effect of QCD axions on astrophysical black holes, and other gravitational wave sources at high frequencies. We present the experimental status of the 1-meter prototype that is under development as well as the theoretical results for new physics from high-frequency gravitational waves.

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