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Science case and design considerations for a GW detector in the 10 - 300 kHz band

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The levitated-sensor detector aims to look for gravitational waves (GW) in the frequency range from 10 kHz to 300 kHz. Since it is based on a resonant interaction between the GW and the levitated particle, it can have a significantly smaller footprint than the kilometer-scale detectors, inspring the first generation detector to be tabletop! I will explain the latest design modifications that allow a 20-fold improvement in sensitivity over the previous proposal. I will also talk about the estimate of strain from GW sources like BH superradiance and primordial black holes in this frequency range. Finally, I will provide updates on the latest developments on the first-generation detetcor's implementation in the lab.

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