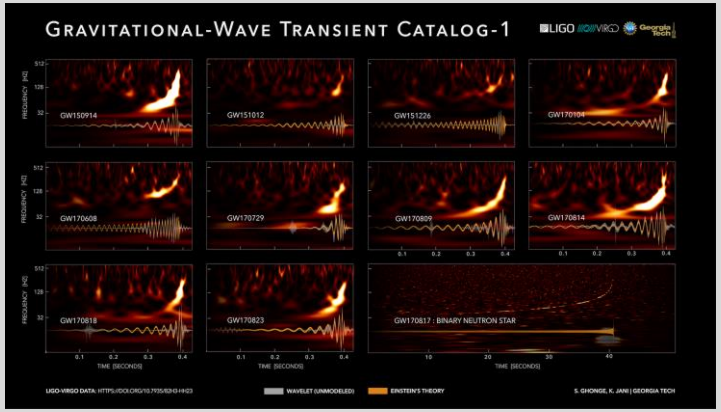
A22-305: Sensors for Quantum Coherent Dark Matter Detectors

Quantum Sensing for Fundamental Physics

- Optical interferometry for gravitational wave detection:
  - Squeezed light, variational readout, backaction evasion, and other techniques can improve sensitivity.
- Microwave quantum optics for axion searches above ~1μeV:
  - Photon counting, squeezed microwave states speed up axion scan rate.

LIGO, cavity optomechanics

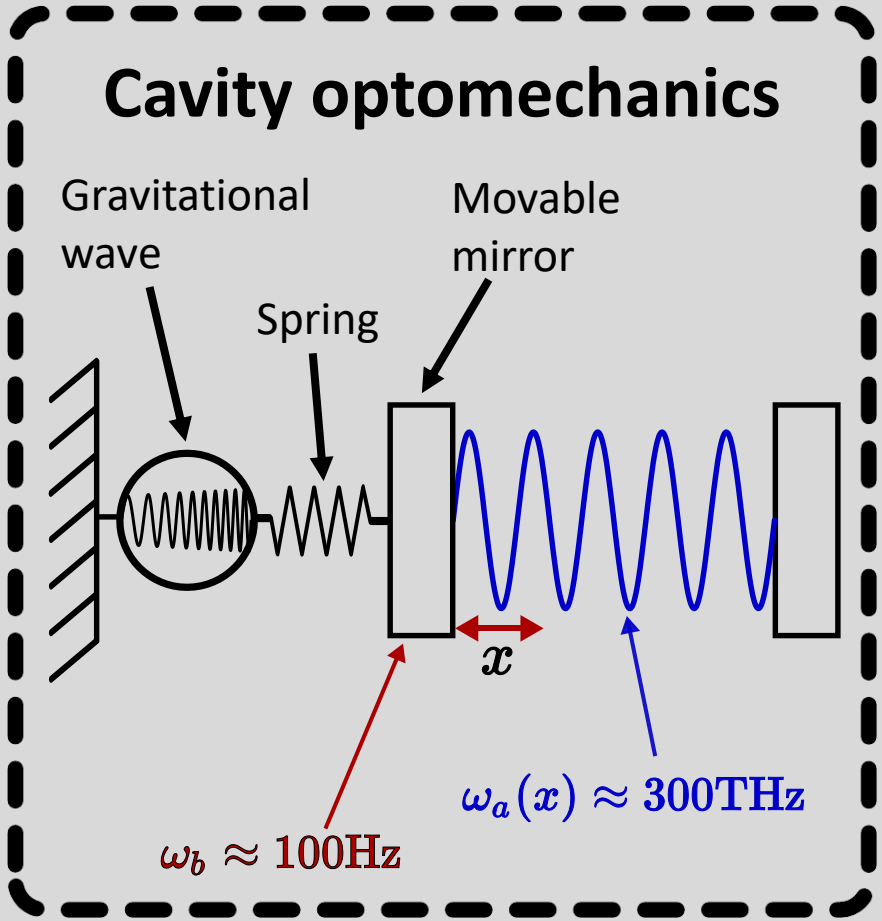
Gravitational wave detections

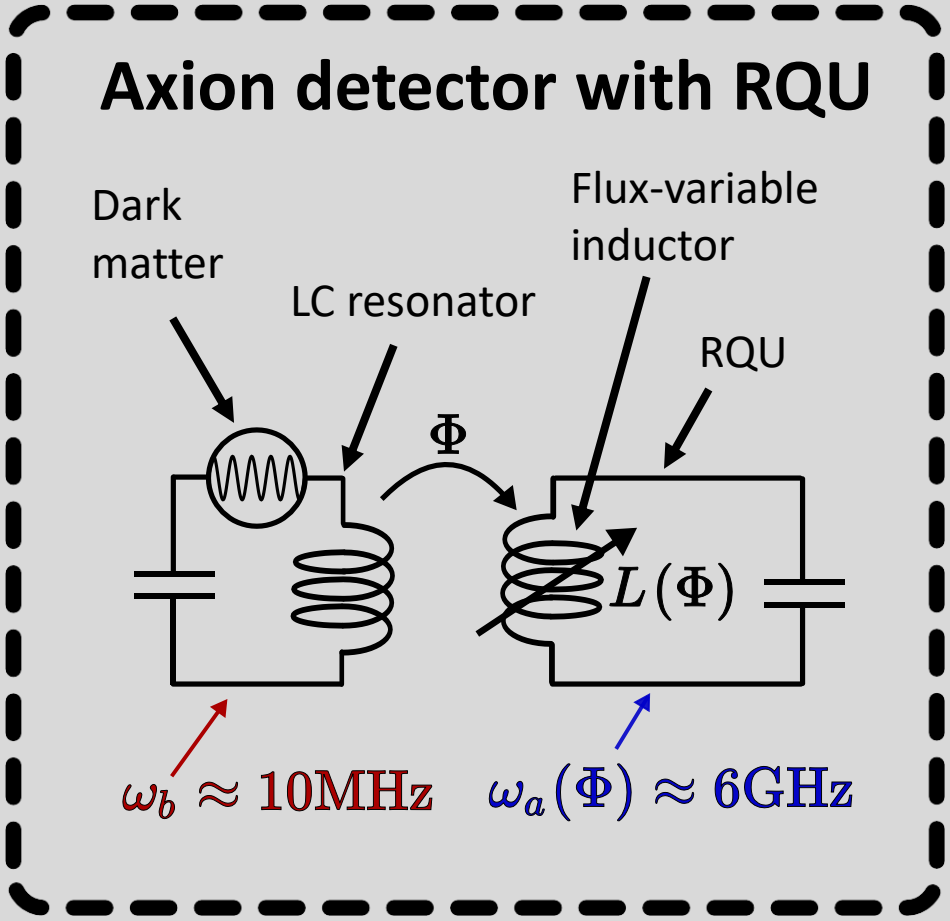


LIGO/VIrgo/Georgia Tech/S. Ghonge & K. Jani

A22-305 Poster Highlight, 7/25/2019, LTD18

The RF Quantum Upconverter:
extends quantum measurement techniques to lower frequencies





A22-305: Sensors for Quantum Coherent Dark Matter Detectors