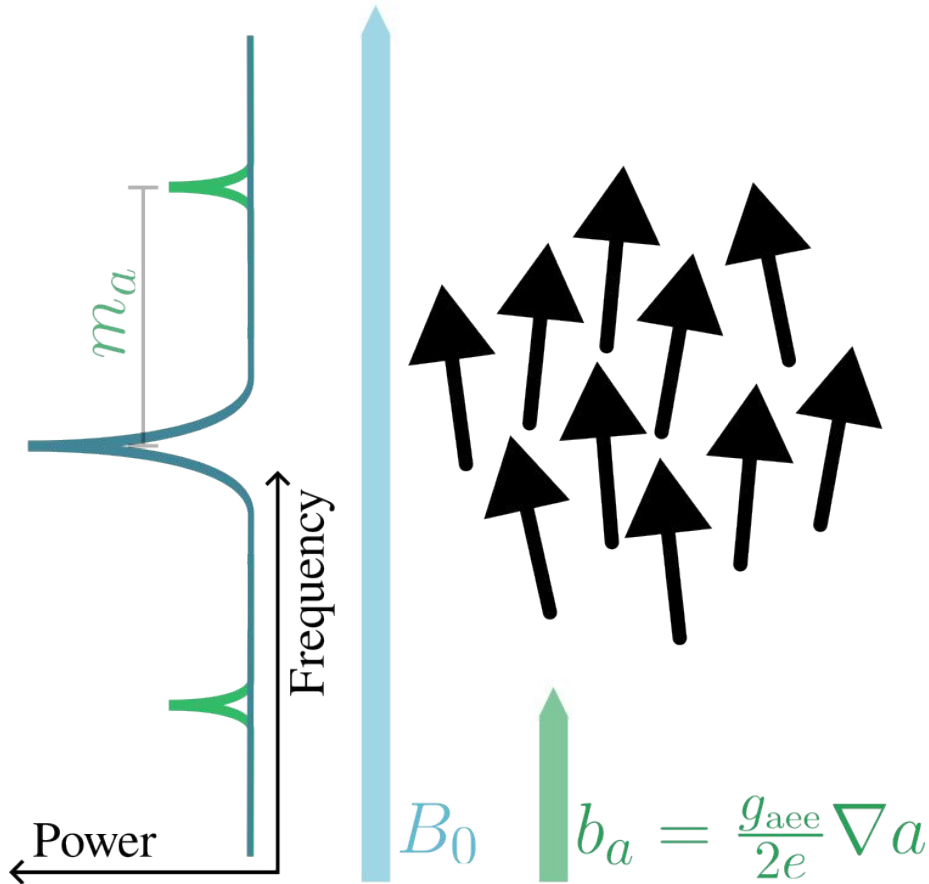


Introducing the longitudinal ferromagnetic haloscope

Nicolò Crescini - Institut Néel, CNRS

SHRiMp
spin hybrid resonance magnetometer





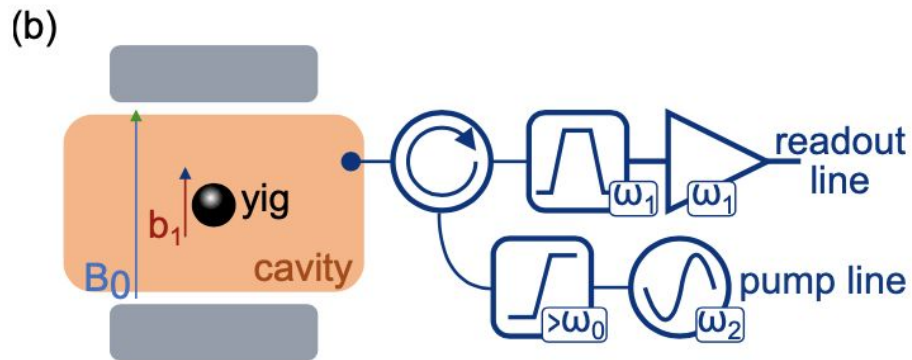
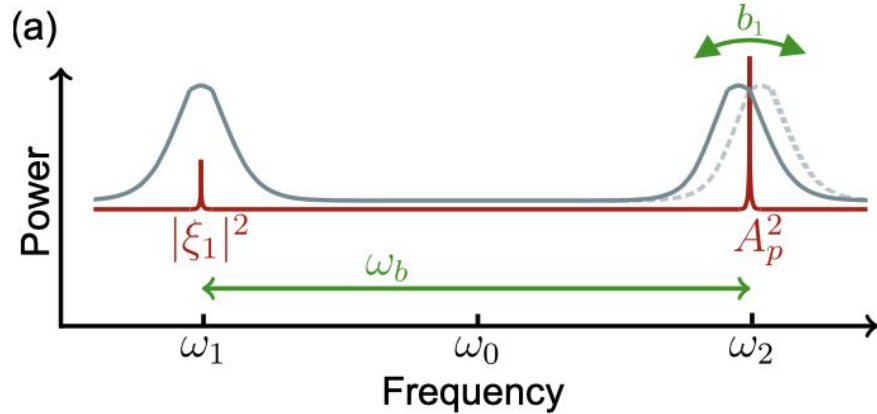
Axion-modulated electron spin resonance

The electron spin resonance in a material can be phase modulated by a Dark Matter axion field, producing sidebands (see CASPER-Wind). How to detect them at high frequencies?

Blend with photon-magnon hybrid systems

A good experimental testbed are cavity-magnon polaritons. The the modulation happens on one resonance, the readout on the other.

N.Crescini, G.Ruoso, G.Carugno - Phys. Rev. Applied (2021)



A longitudinal haloscope

- this thing can be small!
- power-boostered sensitivity
- >100% frequency tunability
- simple implementation
- many possible realisations

