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【573】Strong magneto-mechanical coupling

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In our experiment, we inductively couple a mechanical oscillator to a microwave circuit. Our magnetic cantilever leads to a position dependent magnetic field. This field is coupled to a microwave resonator via an embedded SQUID i.e. the resonance frequency depends on flux and consequently on the position of the cantilever.
Our first devices indicate a single photon coupling strength of up to 3 kHz (mechanical frequency around 300 kHz). In the near future, we want to investigate cooling of our mechanical cantilever –- a macroscopic object, eventually reaching the quantum ground state.

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