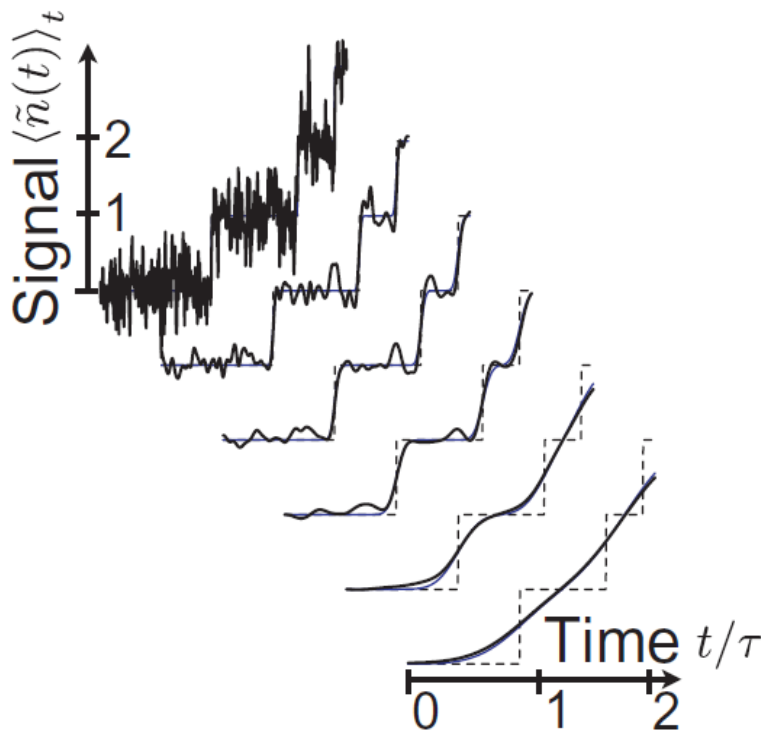


**Q & A**

# Q&A

Q1) What is the number of phonons and how precisely can be measured?



The cavity is driven by laser on resonance and the phase of the transmitted beam is recorded. This phase is proportional to the energy of phonons.

The oscillator has been cooled to its ground state:  $n_{init} = 0$ . The cooling beam is then shut off, and the number-state measurement is made. During this time, the oscillator rapidly heats up.

The left figure is quantum jump traces in the presence of noise and temporal averaging, for increasing averaging time (top to bottom).

# Q&A

Q2) Why did they choose (2,1) and (2,2) modes?

There are unwanted resonance peaks which do not originate from fundamental modes of the rectangular membrane. Some modes are degenerated with them. These mode are not appropriate for experiments.

