

# Seminar

## Yang Liu Stanford University

### Time: 4:00pm, June 5, 2017 (Monday)

2017 6 5 4:00

### Venue: Room W563, Physics building, Peking University

#### 563



Thanks to the high performance of **our** custom-built, state-of-art scanning tunneling microscope, we conduct benchmarking experiments utilizing molecular vibrons as atomic cantilevers whose resonance energy is well above the measurement temperatures. The short-range interaction between the <sup>12</sup>CO-cantilever and other molecules on the sample surface induces novel collective modes that are sensitive to resolve different isotopes. Through the long-range Coulomb interaction, the <sup>12</sup>CO-cantilever can be used as a local charge probe with high charge sensitivities ( $< 5 \times 10^{-4} e$ ) and spatial resolution (<nm).

Atomic and molecular manipulation on surfaces has opened a new realm of possibilities where atomically precise artificial structures can be constructed with a bottom-up approach, one building block at a time. Artificial graphene, which is electron lattice created by modulating surface electrons with CO molecule array, is one of the role model on this topic. We induce axial magnetic fields via straining the lattice and study the electron wavefunctions



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