

Joint Condensed Matter
and
Center for Soft Matter and Biological Physics
Seminar

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Time-translation symmetry breaking in vibrational Floquet systems

Monday, April 16, 2018

4:00pm – 5:00pm

304 Robeson Hall

A periodically driven system has discrete time-translation symmetry with the period of the driving. Its quantum dynamics is described in terms of the Floquet states. Generally, if the system is in a Floquet state, its dynamical variables oscillate with the period of the driving. Recently much interest have attracted systems where the time symmetry is broken, the “time crystal” effect. Nonlinear oscillators, including Nano mechanical systems and modes in electromagnetic cavities, provide an ideal platform for studying this effect. We will show how the symmetry breaking occurs in an individual oscillator in the quantum coherent regime. We will then discuss the classical and quantum phase transitions to the broken-symmetry state in systems of coupled oscillators.