

# Aspect of Floquet physics in closed quantum systems

*Monday 30 September 2024 15:30 (1 hour)*

In this talk, we shall discuss two aspects of a periodically driven closed quantum system. First, we shall discuss the existence of signatures of Hilbert space fragmentation (HSF) in a driven interacting fermi chain in its prethermal regime at special drive frequencies. We provide analytical expression for these drive frequencies, show that such prethermal regime can be exponentially long in the large drive amplitude regime, and discuss feasibility of realization of such systems in experiments. Second, we shall discuss a class of two-rate periodic drive protocol for closed quantum systems where the drive frequencies have integer ratio. We show that for protocols obeying certain conditions, there is a large class of non-integrable models where one obtains an exact Floquet flat band. Near these flat bands, heating in these driven systems is significantly reduced which may be useful, for example, in application to qubit manipulation and quantum state preparation.

**Primary author:** SENGUPTA, Krishnendu (Indian Association for the Cultivation of Science)

**Presenter:** SENGUPTA, Krishnendu (Indian Association for the Cultivation of Science)