

Seminar
Activity driven transport
Ion Santra
Raman Research Institute, Bengaluru

Energy transport in low dimensional systems connected to thermal reservoirs has been a topic of great interest. Collections of active particles, which have their own energy depot, serve as paradigmatic examples of nonequilibrium reservoirs. So an obvious question is what happens to the transport properties of an extended system when it is connected to two such 'active reservoirs'. In this talk, I will present some of our recent works which tries to address this issue. First, I will discuss an exactly solvable model of an active reservoir and then talk about the kinetic temperature profile and energy current flowing through an ordered harmonic chain coupled to two different active reservoirs at the two ends. The energy current shows some interesting non-trivial properties like negative differential conductivity and an additional current reversal, and no effective thermal picture can be consistently built in this case. I will also discuss some universal properties which remain invariant irrespective of the specific dynamics of the constituents of the active reservoir.

Tuesday, May 9th 2023

11:30 AM (Tea/Coffee at 11:15 AM)

Auditorium, TIFR-H