

ICTS Condensed Matter Seminar

- Title** : Distribution of local observables in a current carrying steady state in a boundary driven XXZ model
- Speaker** : Sreejith G. J (Indian Institute of Science Education and Research, Pune)
- Date** : Tuesday, 3rd September 2024
- Time** : 11:30 AM (IST)
- Abstract** : The non equilibrium steady state (NESS) of boundary driven quantum many body systems within Lindblad approximation can be obtained using exact diagonalization or long-time evolution of the dynamics. While these can be used to obtain expectation values of few site operators, more complex observables need impractical numerical time evolutions due to rapid growth of relaxation times with system size. I will describe an exact solution for the NESS for the boundary driven XXZ spin chain in MPS form and use the results to obtain the spin spin correlations, second Renyi entropy and full distribution of local observables such as magnetisation, staggered magnetisation and domain wall densities in the spin current carrying NESS. Exact form of the scaled cumulant generating function and numerically exact rate functions can be obtained in the XY limit. Away from the XY limit, the full distribution of observables is computed numerically exactly in very large finite blocks (~200-300 sites).
- Venue** : Chern Lecture Hall
- Zoom Link: <https://icts-res-in.zoom.us/j/98197553148?pwd=jVfPoLGLMBIa2GTVVVV2s6xaqKLi8ii.1>
- Meeting ID: 981 9755 3148
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