



ICTS

INTERNATIONAL  
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TATA INSTITUTE OF FUNDAMENTAL RESEARCH

## ICTS Statistical Physics and Condensed Matter Seminar

**Title** : Scarring and quantum-classical correspondence for quantum channels

**Speaker** : Arul Lakshminarayan (Indian Institute of Technology Madras)

**Date** : Wednesday, 20 August 2025

**Time** : 11:30 AM (IST)

**Abstract** : Quantum channels describe time evolution in open systems. Defining a Koopman operator based classical channel, allows us to study semiclassical features of open systems. We see that the long lived modes of quantum channels are dominated by regular classical phase space structure or by scarred states when there is complete chaos. We interpret the classical channel as a noisy or random dynamical system and the corresponding quantization surprisingly shows clear features of the underlying deterministic dynamics. These have implications for scarring in many-body systems such as unitary circuits.

**Venue** : Emmy Noether Seminar Room

Zoom Link: <https://icts-res-in.zoom.us/j/95397462545?pwd=wXFzhWu2hw0Kw9c9G6tLaqpJlNwJAw.1>

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