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TATA INSTITUTE OF FUNDAMENTAL RESEARCH

ICTS Colloquium

Title : Anderson localization and Levy sums in random lasers

Speaker : Sushil Mujumdar, Tata Institute of Fundamental Research,
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Date : Monday, October 23, 2017

Time : 3:00 PM

Venue : Emmy Noether Seminar Room, ICTS Campus, Bangalore

Abstract : For a long time, investigations of light transport in disordered media retraced the trail of mesoscopic studies in electronic systems, punctuated by observations such as light diffusion and the metal-insulator transition for light. The addition of optical gain into the disordered medium, however, led to a series of unexpected observations that initiated an idea of optical materials titled, rather fancifully, 'random lasers'.

In this talk, I will first explain the term random lasers, and then present a report of our own contributions in light diffusion and localization. The former study provided evidence of the manifestation of exponentially tempered Levy sums in random lasers and identified the role of extreme events in the process. The latter study has revealed unexplored facets of amplified bandedge and bandgap states, and has led to the observation of Anderson localization lasing and its temporal statistics.