



ICTS

INTERNATIONAL
CENTRE *for*
THEORETICAL
SCIENCES

TATA INSTITUTE OF FUNDAMENTAL RESEARCH

ICTS Condensed Matter and Statistical Physics Seminar

Title : Wavefront shaping through disorder: largest eigenvalues and giant fluctuations

Speaker : Gregory Schehr (LPHTe, Sorbonne Université, Paris)

Date : Thursday, 15 October 2026

Time : 11:30 AM (IST)

Abstract : Wavefront shaping allows one to focus light through strongly scattering media by controlling the incident wavefront. I will show that the optimal focusing problem can be formulated in terms of the largest eigenvalue of a transmission matrix, naturally connecting the experiment to random matrix theory. While the average focusing enhancement is remarkably well described by Wishart statistics, its fluctuations can become anomalously large, revealing long-range mesoscopic correlations in multiple scattering. Joint work with H. Yilmaz, Nat. Commun. 17, 10129 (2026).

Venue : Emmy Noether Seminar Room

Zoom Meeting: <https://icts-res-in.zoom.us/j/94231001635?pwd=UbjIWbxPy4zJfxjhCNpTfHYx4QgyJs.1>

Meeting ID: 942 3100 1635

Passcode: 151516