S N BOSE NATIONAL CENTRE
FOR BASIC SCIENCES
Block JD, Sector III, Salt Lake, Kolkata 700 106

DEPARTMENTAL SEMINAR

Physics of Complex Systems

03rd November,2023   3.00 PM   ONLINE / FERMION

SPEAKER

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TITLE OF THE TALK

Quantum intersection with applications to communication in the presence of an adversary

ABSTRACT

In information theory, we often use the intersection of typical sets to analyze various communication problems. However, in the quantum setting it is not very clear how to construct a POVM which behaves as a measurement on the intersection of typical subspaces. In this talk, we will construct a projective measurement that behaves very analogous to the intersection of typical sets in the classical case.

We will then use this construction to design a communication protocol for classical-quantum channels that may or may not also contain an active adversary. The main goal in this model of communication is that if the adversary is present then it should be either detected or the communicating parties are able to communicate successfully with high probability. We will also show that our protocol is optimal.

HOST FACULTY
Dr. Manik Banik, Associate Professor
DEPT. OF PHYSICS OF COMPLEX SYSTEMS
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