



**S N BOSE NATIONAL CENTRE
FOR BASIC SCIENCES**

Block JD, Sector III, Salt Lake, Kolkata 700 106

DEPARTMENTAL SEMINAR **Theoretical Sciences**

16th December'2021

3.00PM

FERMION

SPEAKER

Dr. Manik Banik
Assistant Professor,
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TITLE OF THE TALK

Quantum Theory: Informational Foundations & Applications

ABSTRACT

Second quantum revolution, equipped with the language of information theory, aims to harness the non-classical features of individual quantum systems in devising novel protocols that are advantageous over their corresponding classical counterparts. With each passing day the quantum technology is getting extremely sophisticated and accordingly stretching its domain of applicability from mere academic aesthetic to industrial utility. In this talk I will discuss few exotic quantum communication protocols recently proposed by our groups (some of these proposals have already been implemented with presently available quantum technology). I will also cover some of our other recent works involving very counterintuitive features of quantum entanglement, in particular the problem of local state discrimination, a characteristic property of multipartite quantum systems. At the end, in light of our few other works, I will also discuss how this new language of quantum information theory helps us to address several long-standing foundational questions. Particularly, I will discuss how new insight can be acquired regarding axiomatic derivation of the Hilbert space structure for composite quantum systems.

HOST FACULTY

Prof. Punyabrata Pradhan and Dr. Sunandan Gangopadhyay

DEPT. OF THEORETICAL SCIENCES
