

SEMINAR NOTICE

On 11th March (Friday), 2022

Time: 3:00 PM

VENUE- PAMU Seminar Room (offline)

Physics and Applied Mathematics Unit
Indian Statistical Institute, Kolkata- 700108

Speaker: PROF. SIBASISH GHOSH

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TITLE: Universal schemes for detecting entanglement in two-mode Gaussian states: Stokes-like operator based approach.

ABSTRACT: Detection of entanglement in quantum states is one of the most important problems in quantum information processing. However, it is one of the most challenging tasks to find a universal scheme which is also desired to be optimal to detect entanglement for all states of a specific class - as always preferred by experimentalist. Although, the topic is well studied, at least in the case of lower dimensional compound systems (e.g., two-qubit systems), but in the case of continuous variable systems, this remains as an open problem. Even in the case of two-mode Gaussian states, the problem is not fully resolved. Here, we try to address this issue. At first, a limited number of Hermitian operators is given to test the necessary and sufficient criterion on the covariance matrix of separable two-mode Gaussian states. Thereafter, we present an interferometric scheme to test the same separability criterion in which the measurements are being done via Stokes-like operators. In such case, we consider only single-copy measurements on a two-mode Gaussian state at a time and the scheme amounts to the full state tomography. Although this latter approach is a linear optics based one, nevertheless it is not an economic scheme. Resource-wise a more economical scheme than the full state tomography can be obtained if we consider measurements on two copies of the two-mode Gaussian state at a time. However, optimality of the scheme is not yet known.

All are Cordially Invited to Attend

(Head, PAMU)