

Open Talk

6th March, 2019

12:00 PM

Boson

SPEAKER

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TITLE OF THE TALK

Coherence Assisted Non-Gaussian CV-MDI-QKD

ABSTRACT

Key distribution is a field of generating a bit string, for encryption and decryption of a message, that can't be accessed by any adversary but the interested parties. Quantum key distributing accomplishes such task without posing any restriction on the memory and resource of the adversary as it is based on the fundamental principle of quantum theory known as the no cloning theorem that prohibits duplication of "information" without any disturbance.

There have been several schemes for quantum key distribution (QKD), proposed from time to time. The most popular and efficient scheme among all of them is the measurement-device-independent (MDI) protocol due to its salient feature like it integrates the security concern into its schematics. MDI protocol for distributing key over long distances using entangled optical resources, primarily the two-mode squeezed vacuum state (TMSV), have gained immense importance due to the facts that it is readily implementable as well as it provides longer distance over which the key could be distributed. Moreover, certain de-Gaussifications on TMSV, have been found to be further beneficial for increasing the distance.

We have shown that instead of the vacuum, use of coherent light along with the non-Gaussian operations could further enhance the distance. Nonetheless, various earlier observations could be well retrieved as limiting cases of our general result. Under realistic scenario, with non-ideal detectors, use of coherence has been found to perform better than TMSV.

HOST FACULTY

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