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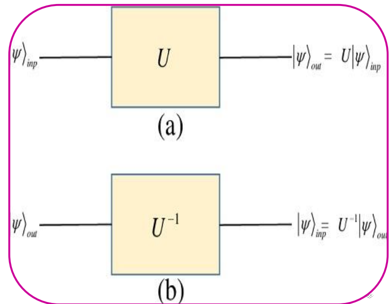
COMMUNICATION PROTOCOL WITH QUANTUM RESOURCES AN BASIC STUDY



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ABSTRACT

Communication through the use of mutually understood symbols and rules means conveying the desired message to a party. Effective communication has played an important role in the development of civilization, and the ability to communicate often sets humans apart from other living things. Over time we have learned many techniques of communication and our communication depends on plans. In fact, communication plays an important role in modern society, and with the rapid development and enhanced use of e-banking, mobile phones, internet, IoT, etc., our dependence on communication technology is constantly increasing. The dissertation focuses on a set of modern techniques of technology.

KEY WORDS – *Communication , modern society , communication technology.*

INTRODUCTION

The first quantum teleportation scheme was started by Bennett et al. in 1993. This scheme consists of two bits of classical communication from Alice (sender) to Bob (receiver) and pre-shared maximum stuck conditions. Dance coding is an almost related scheme for quantum communication, where two classical bits of information are transferred by single-quit and previously shared difficulty. The scheme was started in 1992 by Bennett and others. Following this pioneering work, several quantum communication schemes have been proposed.

Chronological history of quantum communication protocols:

In this section, we aim to discuss the historical development of quantum communication schemes of both the above classes. First we discuss Class-1 plans. However, we have placed more stress on those schemes which can be seen as variants of teleportation as compared to the schemes of transporting because this dissertation focuses on teleportation.

- 1992: In 1992, Charles H. Bennett and Stephen J. Weisner introduced the concept of dense coding. The plan allowed Alice to send 2 bits of classical information to Bob by sending only one quit if they already had the status involved. This was surprising because the communication capacity of this scheme was as much information as possible beyond the classical value that could be communicated scientifically by sending a few particles.
- 1993: In 1993 Charles, Charles H. Bennett and others proposed the first quantum teleportation scheme, which had no scientific analogues. This was an exciting development because the quantum state telephoned in this plan does not travel through the channel and at the end of the plan, all information about the state is lost at the end of the sender and the quantum state is received at the end of the recipient.

- 1997: Dick Bowmaster and so on. He presented the first experimental demonstration of the quantum teleportation scheme using fragmented photos generated by the Type 2 Spontaneous Parametric Down-Conversion (SPDC) type.
- 1998: Anders Carlson and Mohamed Borren proposed the first scheme for a QIS or controlled quantum teleportation scheme, where the sender teleports two receivers to an unknown quantum state. Since cloning is not a theorem, only one of them can be reproduced by the state with the help of another recipient who is considered to be the controller.
- 2000: Arun K. Patil proposed the first plan for remote state preparation, which can be seen as a plan for the QT of the known quantum state. Since then, several experimental feedbacks on remote state preparations have been reported.
- 2004: Various aspects of teleportation have been experimentally demonstrated. For example, Xiao Zhao et al demonstrated the teleportation of massive particles (molecules), MD Barretti et al., by creating a five-quit complex state of photons. Quitts using limited ions in ion traps and Eun-feng Huang, etc., performed experimental teleportation of CNOT gates.
- 2012: In Geo-Song and so on. Also reported 143 kilometres of optical fiber between La Palma and Tenerife in the Canary Islands, and Quan Yin et al also reported free space QT and difficulty distribution over 100 kilometres in China.
- 2015: Various interesting schemes of QT Two Party and Three Party Scheme have been reported. Here we can mention some of them like Protocol designed by Zhuliang Cao and Wei Song in 2005-2002, Li Da-Chuang and Cao Zhuo-Liang in 200, Li Song-Song It Al in 200 Song, Chia-Wei Sai Yuzan-Li Lee in 2010 and Zonellih Hwang in 2010. The author prepares and maintains all these works to teleport to an unknown quantum state. Quantum Resources uses expensive in terms of multi-quit state.
- **2018:** It has been found that even after the launch of our good scheme among 201 people, many people are proposing QT schemes with quantum resources. So, in 201 we have written a specific comment to show how we can realize our optimal plan in a particular case.

Chronological history of Class 2 quantum communication protocols:

1983: Stephen Weiner published a paper called "Conjugate Coding" which originally covered a number of concepts of secure quantum communication. The formal journey of quantum cryptography began with this paper.

1992: Charles H. Bennett proposed a new protocol to establish that two states selected from two nonarthogonal bases would be sufficient for QKD. The protocol is now known as the B92 protocol.

2002: Popular ping-pong (PP) protocol for Quantum Secure Direct Communication (QSDC) presented by Kim Bostrum and Timo Felbinger.

2005: Marco Lukamarini and Stefano Mancini presented a protocol, known as the LM05 scheme. It is a PP-type protocol that can be used without single photon status.

2009: Ta-Gon Noah proposed a counter-protocol for QKD. The protocol is now known as the N09 protocol. This protocol has recently been experimentally tested, which is also interesting because it has led researchers to implement several counter-schemes of secure quantum communication.

20018: Several quantum cryptographic protocols have been reported and some of them have been obtained experimentally. During this time, many other aspects of QKD were discovered. For example, the concepts of semi-quantum key distribution, per-actual key distribution, device-independent QKD, semi-device-independent QKD, and measuring device-independent QKD have also been developed and gradually matured for review. It will be interesting to note here that in a semi-quantum scheme the end user can be classical and it is possible to deliver a completely secure key even if the devices used in the device separate scheme are not defective. However, to achieve complete independence of the device, we usually need a 100% efficient photon-detector, which cannot be achieved at the moment. In contrast, measurement devices allow separate schemes to deliver secure keys only when the measuring instruments are faulty. The

Bell non-local state is essential for the realization of this art scheme of QKD, but it is realized that one-way device freedom measuring device freedom can be achieved by using steering. Further, plans for safe live communication in laboratories have been realized.

QUABIT AND MEASUREMENT:

Before embarking on a quantum communication plan, we would like to present here the basic building blocks of the quantum information process known as quantum. Quit can be seen as a bit of a quantum analog. As you know, classical information is measured slightly, which is in either state 0 or 1, just as quantum information is represented by quit, which allows 0 and 1 states to exist simultaneously as |ψ| Description of h|ψ| as and is pronounced as a bra. Thus, the state vector is usually described as a column matrix |ψ| was represented, while |ψ| Described by the row matrix. Now, a quit represented by a state vector | ψi = α | 0i + β | 1i, where α and the probability are components and complex numbers, which fulfills the condition | α | 2 + | β | 2 = 1. | α | | 2 and | β | When measured on computer basis, the state has 0i and | The probability of getting a 1i quit is 2. The last statement and the next paragraph will make it clear that the quantum state collapses in the base state when measured on a specific basis, but before doing so we need to describe in detail the basic sets used in this work.

Various Facets of Quantum Communication Schemes of Class – 1:

Since the inception of the Quantum Communication community in 1991, attention has been drawn to the pioneering work of Bennett and others. As a result, a large number of revised QT schemes are proposed. To illustrate this point we can mention some of the schemes of Quantum Communication Task which can be seen as modified schemes for QT. This set of quantum communication functions includes remote state preparation, controlled quantum teleportation or equivalent quantum information segmentation, bidirectional quantum teleportation, bidirectional controlled quantum teleportation, quantum secret sharing, hierarchical quantum secret sharing. The correlation between these forms of QT can be easily understood if we note the QT of a known state i.e., when the fractional coefficient of probability of a state is telephoned, the sender is usually referred to as an alleys but is not usually referred to as the receiver. Bob referred to each as the simultaneous QT bilingual state teleportation of the quantum state. Similarly, controlled teleportation and bidirectional controlled state teleportation schemes are controlled variants of QT and bidirectional state teleportation schemes, where a third party (Charlie) oversees the entire operation by creating a quantum channel to use and blocking useful information. In other words, in controlled teleportation bi-directional controlled state teleportation, if Charlie allows doing so, Lis and Bob QT can implement a bi-directional state teleportation plan.

Many of the schemes mentioned above have very interesting applications. For example, we can mention that each of BST's schemes can be used to design a quantum remote control. It is also worth noting here that although teleportation (and most of its variants) is not a secure communication plan in its original form, it can be used as a primitive one for secure quantum communication.

CONCLUSION:

Introduced the basic concepts related to quantum communication schemes by focusing on quantum teleportation and quantum cryptography and some specific examples of quantum communication schemes. Quantum teleportation deserves special attention in the various aspects of quantum communication as it involves many other schemes of quantum communication. Inspired by this fact, a major part of the work in the present dissertation is devoted to the study of quantum teleportation schemes. In addition, in this dissertation we have also worked on another important aspect of quantum communication - quantum cryptography. Here, we can note that in this paper, we have created two schemes for quantum communication, but the focus of the paper is not to design new protocols.

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