

Controlled and Secure Direct Communication Using GHZ State and Teleportation

T. Gao^{a,b,c}

^a Department of Mathematics, Capital Normal University, Beijing 100037, PR China

^b College of Mathematics and Information Science, Hebei Normal University,
Shijiazhuang 050016, PR China

^c CCAST (World Laboratory), P.O. Box 8730, Beijing 100080, PR China

Reprint requests to Prof. T. G; E-mail: gaoting@heinfo.net.

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A theoretical scheme for controlled and secure direct communication is proposed. The communication is based on GHZ state and controlled quantum teleportation. After insuring the security of the quantum channel (a set of qubits in the GHZ state), Alice encodes the secret message directly on a sequence of particle states in the GHZ state and transmits them to Bob, supervised by Charlie using controlled quantum teleportation. Bob can read out the encoded messages directly by the measurement on his qubits. In this scheme, the controlled quantum teleportation transmits Alice's message without revealing any information to a potential eavesdropper. Because there is not a transmission of the qubit carrying the secret messages between Alice and Bob in the public channel, it is completely secure for controlled and direct secret communication if a perfect quantum channel is used. The feature of this scheme is that the communication between two sides depends on the agreement of a third side.

Key words: Secure Direct Communication; GHZ State; Controlled Quantum Teleportation.