J Astrophys Aerospace Technol 2018, Volume 6
DOI: 10.4172/2329-6542-C2-021

International Conference on
Planetary Science and Particle Physics
August 27-28, 2018 | Boston, USA

A robust and efficient quantum private comparison of equality based on the entangled swapping of GHZ-like state and χ+ state

Zhiwen Zhao and **Ling Xu**
Beijing Normal University, China

A new quantum protocol with the assistance of a semi-honest third party (TP) is proposed, which allows the participants comparing the equality of their private information without disclosing them. Different from previous protocols, this protocol utilizes quantum key distribution against the collective-dephasing noise and the collective-rotation noise, which is more robust and abandons few samples, to transmit the classical information. In addition, this protocol utilizes the GHZ-like state and the χ+ state to produce the entanglement swapping. And the Bell basis and the dual basis are used to measure the particle pair so that 3 bits of each participant's private information can be compared in each comparison time, which is more efficient and consumes fewer comparison times. Meanwhile, there is no need of unitary operation and hash function in this protocol. At the end, various kinds of outside attack and participant attack are discussed and analyzed to be invalid, so it can complete the comparison in security.

secbnu@126.com