Quantum Computing:
Report on Quantum Communication Networks

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1 Introduction

Quantum communication networks were previously a major challenge to maintain over long distances due to the pure photon ("particle of light") source needed . This was resolved in 2007 [3] by the same research group who contributed to this article, "Quantum Communication at 7,600km and Beyond" [2].

2 Experiments

The scientists built quantum networks in various parts of China. The total distance spanned using this direct method was 2,000 km. Later, satellites were used to reach points on Earth up to 1,400 km apart.

3 Implications

The United States and Europe have since expanded their efforts in quantum communications networks [1].

References

[1] Dabbar, P. M. The Quantum Internet of The Future is Here, July 2020.

[2] Lu, Chao-Yang, Peng, Chen-Zhi, and Pan, Jian-Wei. Quantum Communication at 7,600km and Beyond. *Communications of the ACM 61*, 11 (Nov. 2018), 42–43.

[3] Peng, C.-Z., Zhang, J., Yang, D., Gao, W.-B., Ma, H.-X., Zeng, H.-P., Yang, T., Bin Wang, X., and Pan, J.-W. Experimental long-distance decoy-state quantum key distribution based on polarization encoding. *Physical Review Letters 98*, 010505 (2007).