

Practical Quantum Encryption and Noise-Resilient Quantum Sensing for Space Applications

Space-based quantum systems face unique challenges, including hardware limitations, decoherence, and secure data transmission. This contribution presents a practical approach to implementing quantum encryption protocols using Qiskit, alongside noise-resilient quantum sensing strategies tailored for satellite and near-space environments. By bridging theory with practical simulations, the work demonstrates how robust error mitigation can enhance the reliability of quantum tasks in space applications. This talk also highlights the potential for integrating quantum machine learning in satellite data analysis, providing insights into the next generation of secure and efficient space technologies.

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