Low Loss Quantum Communication Mesh Wiring Frame

In this publication, we describe XCOM, a synchronization and low-latency message exchange bus with a mesh network topology. Multi-module hardware communication is available in ...

In conclusion, our results indicate high prospects for the utilization of quantum emitters as on-demand sources of single-photon in ultra-low loss, <= 1 dB/m, photonic integrated circuits, ...

Researchers at the Southern University of Science and Technology, the International Quantum Academy and other institutes in China have recently developed low-loss interconnects for linking the ...

Low-loss interconnects exhibit quality factors up to 8.1 × 10^5, enabling efficient quantum state transfer. Five modular quantum modules achieve inter-module Bell state fidelities up to 99%.

To address this, we present XCOM, a network that synchronizes QICK boards and the absolute clocks governing quantum program execution to within 100 ps, free of drift and loss of lock.

We offer our cables in a selection of different materials with low thermal conductivity and good electrical conductivity properties for different low temperature applications.

We design and test a low-loss interface between superconducting three-dimensional microwave cavities and two-dimensional circuits, where the coupling rate is highly tunable.

Low-loss superconducting aluminium cables and on-chip impedance transformers can be used to link qubit modules and create superconducting quantum computing networks with high-fidelity...

Here, we describe a procedure that capitalizes on the structural benefits of inter-layer dielectrics during fabrication and mitigates the added loss. We use a deposited inter-layer dielectric ...

In this paper, we address the wiring challenge of trapped-ion quantum computers. We describe a control architecture called WISE (Wiring using Integrated Switching Electronics), which ...

This paper explores the development of silicon-based quantum photonic circuits that enable decentralized quantum communication networks, where each device functions as an ...

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