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Multiplexed Memory-Insensitive Quantum Repeaters ODELL COLLINS, STEWART JENKINS, T.A. BRIAN KENNEDY, ALEX KUZMICH, Georgia Institute of Technology — Long-distance quantum communication via distant pairs of entangled quantum bits (qubits) is the first step towards secure message transmission and distributed quantum computing. To date, the most promising proposals require quantum repeaters to mitigate the exponential decrease in communication rate due to optical fiber losses. However, these are exquisitely sensitive to the lifetimes of their memory elements. We propose a multiplexing of quantum nodes that should enable the construction of quantum networks that are largely insensitive to the coherence times of the quantum memory elements.

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