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Multiplexed Memory-Insensitive Quantum Repeaters
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Georgia Institute of Technology — Long-distance quantum communication via dis-
tant pairs of entangled quantum bits (qubits) is the first step towards secure mes-
sage transmission and distributed quantum computing. To date, the most promising
proposals require quantum repeaters to mitigate the exponential decrease in com-
munication 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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