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## Prospects for quantum network using trapped-ion quantum nodes

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### Abstract

Building a quantum computer using trapped ions inevitably involves photonic interconnection of quantum nodes, which is equivalent to constructing a trapped-ion quantum network. From quantum networking and communication perspectives, trapped-ion quantum node is a promising platform to implement various functionalities such as quantum repeaters, quantum memory, and so on. We will present our prospects for the implementation of quantum networking nodes using trapped ions and discuss the realization of reproducible, plug-and-play trapped-ion quantum nodes by fully utilizing the nanophotonics.