

Towards Practical Photonic Quantum Information Processing

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Quantum information is a field of science that studies information based on the principles of quantum physics, such as superposition and quantum entanglement. Quantum information has attracted significant interest due to its wide range of applications, including quantum computation, quantum communication, and quantum sensing. Various physical platforms, such as superconductors, trapped ions, single defects in solids, neutral atoms, and photons, can be used to implement quantum information protocols. In this talk, I will introduce the basic concepts of quantum information and discuss quantum optical approaches to implementing various quantum information protocols. I will also present recent research in photonic quantum information, focusing on quantum sensing [1-6] and quantum simulation [7], which we have studied at the Center for Quantum Technology, KIST.

References

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