

Abstract

Finally, have some fun with quantum mechanics! Improved sources and detectors are giving rise to the fast-developing field of Quantum Information Science and Technology (QIST), which takes advantage of non-classical behaviors to create new capabilities. We embark first on a whistle-stop tour of QIST highlights, with nary a word about quantum computing but visiting such topics as entanglement swapping, teleportation, quantum cryptography, and quantum memories. From there we go into detail on two new projects in our BNL QIST collaboration, specifically quantum-assisted astrometry for astrophysics, and long-distance quantum networking for entanglement distribution. Future opportunities for fun will also be discussed.