

## **Quantum Optics and Quantum Information Laboratory**

In the last four decades, several Quantum optics based experiments have been proposed and performed to validate foundational aspects of quantum theory. These experiments have firmly established that nature is nonlocal (local hidden variable theories cannot explain it), matter field interaction can generate quantum states that does not have any classical analogue (e.g., squeezed state, anti-bunched state, entangled state), and such nonclassical states have potential applications of every facets of science and daily life. Along with various aspects of Quantum Physics (see web-page of Quantum Physics Group), efficient generation of entangled photons using short-pulsed laser and its characterization will be realized. Development of Single Photon Source and its characterization shall be performed. Optically generation of non-classical states shall be applied for carrying out challenging modern-day experiments in Quantum Physics.