



Module PMRF-ISSS001/II/2025

Introduction to Quantum Optics

Name of the PMRF student

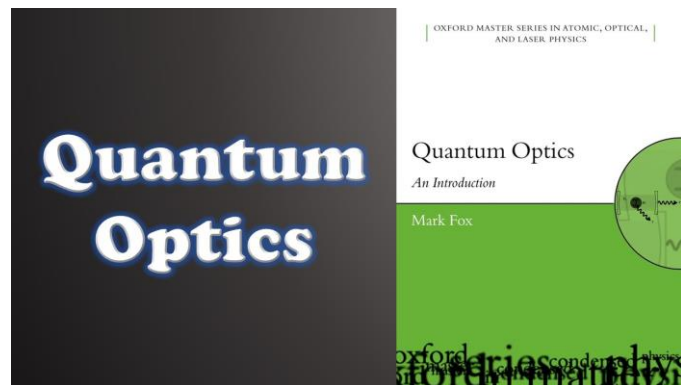
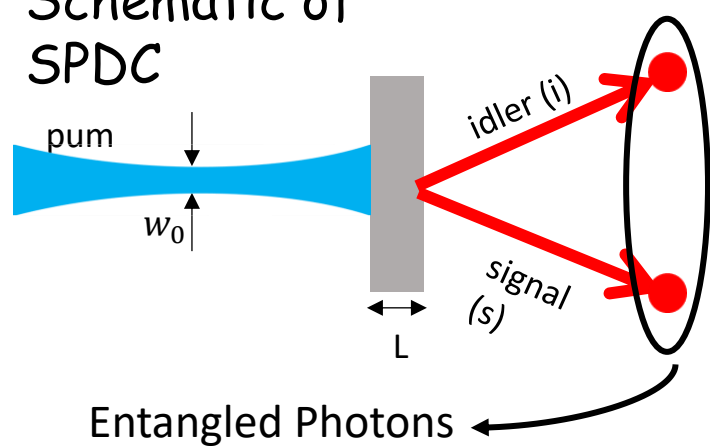
Radhika Prasad

Details of the content of the module

Required background of the students taught

Physics undergraduate/masters/early postgraduate

Schematic of SPDC



We will get an overview of Quantum Optics.

1. Classical optics: Maxwell's equations, interference of waves, coherence theory
2. Foundations of quantum mechanics: Schrodinger equation, uncertainty principle, expectation value, harmonic oscillator
3. Photon statistics (photon number states, coherent states, Poissonian statistics), two-level atom, Bloch sphere
4. Entanglement: entangled photon pairs, Bell states, quantum cryptography and quantum teleportation

Students can follow the textbook by Mark Fox

Schedule of the module

13 Weeks

Saturday 1-3 pm

Tentative start: 11th January, 2025

Meeting link : Will be shared later

[Link](#)

Contact email ID: issf.forum@gmail.com

Registration link:

<https://forms.gle/in7QSLp8u2jGkD9d9>