

IMPRS UFAST Focus Course

Introduction to Quantum Optics

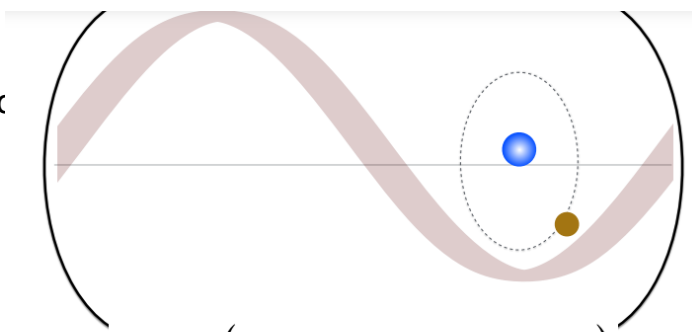
Frank Schlawin

Abstract:

This course will provide an introduction to basic quantum optics. A particular focus will be placed on light-matter interactions and the derivation and analysis of simple models such as seminal Jaynes Cummings model. We will explore the crossover from weak to strong light-matter coupling, and of experimental signatures thereof. If time permits, based on discussion with the participants, more specialised topics could be introduced, such as many-body cavity QED or quantum metrology.

Topics include:

- Electromagnetic field quantization
- Quantum states of light
- Jaynes-Cummings model
- Purcell effect
- Input-output relations



$$H^{(m)} = \begin{pmatrix} m\omega_0 + \frac{\Delta}{2} & \frac{g}{2}\sqrt{m+1} \\ \frac{g}{2}\sqrt{m+1} & (m+1)\omega_0 - \frac{\Delta}{2} \end{pmatrix}$$

12th – 16th Sep.

9:00 – 12:00

CFEL/building 99

Seminar room O1.060

Register on Geventis I-UF FC1