Announcement

**HS Topics in Modern Quantum Optics**
Prof. Kubanek

**Description**
The seminar covers topics in modern quantum optics focussing on different quantum systems and current research topics in the field. During the seminar students will become experts in one of the following topics, give a final presentation and summaries their work in a short final report.

**Content** (includes some of the following topics)
- Different quantum systems
  (colour centre in diamond, quantum dots, ion traps, cold and ultracold atoms, Rydberg atoms, parametric down-conversion)
- Topics in quantum optics
  (quantum entanglement, quantum teleportation, Bell’s inequalities, nonlinear optics, non-classical states of light, squeezed light, quantum key distribution, quantum repeater, quantum sensing, quantum computing, cavity quantum electrodynamics)

**Prerequisites**
Formal prerequisites: None
Recommended prerequisites: optics, atomic physics, quantum mechanics, experimental quantum optics

**Literature**
Literature for each topic will be covered by research paper, review articles or book chapters. Additional, individual literature research is recommended.

**Additional information**
- Seminar (2 hours/week)
- 4 ECTS credits

**Lecturer**
Prof. Kubanek, Institute of Quantum Optics