
Modulbezeichnung: Seminar: Nonlinear and Quantum Optics (PS-QuantumOptics) 5 ECTS
(Physics Seminar: Nonlinear and Quantum Optics)

Modulverantwortliche/r: Maria Chekhova

Lehrende: Markus Sondermann, Maria Chekhova

Startsemester: WS 2021/2022

Dauer: 1 Semester

Turnus: unregelmäßig

Präsenzzeit: 30 Std.

Eigenstudium: 120 Std.

Sprache: Englisch

Lehrveranstaltungen:

Physikalisches Seminar: Nonlinear and Quantum Optics (WS 2021/2022, Hauptseminar, 2 SWS, Anwesenheitspflicht, Maria Chekhova et al.)

Inhalt:

Non-exhaustive list of topics for the seminar:

- Two-photon absorption with entangled photons
- Fibre sources of nonclassical light
- Nanoscale quantum nonlinear optics
- Sensing 'with undetected photons'
- Nonlinear optics with noble gases
- The 'simplest' nonlinear optical system: a single atom
- Quantum optics with parabolic mirrors
- Machine Learning for Quantum State Estimation
- Artificial Intelligence for Designing Quantum Optics Experiments and Photonic Devices

Lernziele und Kompetenzen:

Students

- comprehend an interesting physical topic in a short time frame
- identify and interpret the appropriate literature
- select and organize the relevant information for the presentation
- compose a presentation on the topic at the appropriate level for the audience
- use the appropriate presentation techniques and tools
- criticize and defend the topic in a scientific discussion

Literatur:

Will be provided individually for each talk.

Studien-/Prüfungsleistungen:

Nonlinear and Quantum Optics (Prüfungsnummer: 71271)

Prüfungsleistung, Seminarleistung, Dauer (in Minuten): 45

Anteil an der Berechnung der Modulnote: 100%

weitere Erläuterungen:

Seminar talk of 45 minutes.

Prüfungssprache: Englisch

Erstablesung: WS 2021/2022, 1. Wdh.: WS 2021/2022 (nur für Wiederholer)

1. Prüfer: Maria Chekhova

1. Prüfer: Markus Sondermann

Organisatorisches:

Attendance mandatory; personal registration for the seminar by contacting a supervisor.