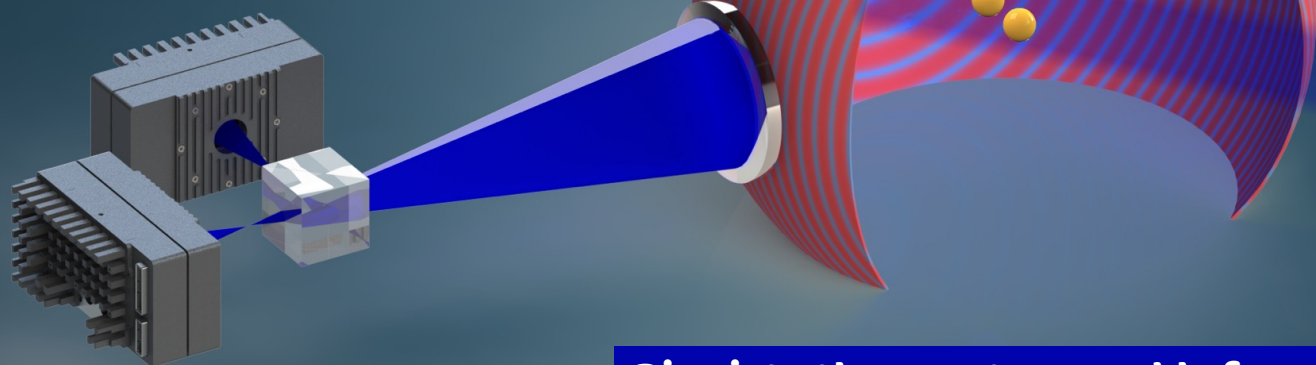


QOQI needs you for Photon Correlations!



Apply now for
a bachelor or
master thesis



Dive into the quantum world of photon correlations in ion traps and investigate the dynamics of photon-ion interactions

The project:

We investigate how crystals of single calcium ions scatter off photons of light – a similar concept coming originally from Double-slit interference, but here in the context of single atomic emitters. An important quantity to know are the spatio-temporal correlations of the photons emitted by the ions which we laser cool and store in a world-class ion trap. Higher order photon correlation measurements are prolific since they lead to entanglement among the ions, allowing to study quantum cooperativity in many body systems and the transition from classical to quantum physics. The goal of the project is to have a perfect control over as many numbers of ions as possible and explore the quantum dynamics resulting from the process of measuring photons emitted by the ions in the far field.

- ◆ Learn the physics of trapping and cooling of calcium ions in a potential trap system
- ◆ Analyse and solve spatio-temporal correlation functions and link them to physical observables in the experiment
- ◆ Learn the Dicke model and extract quantum statistics
- 🦾 You already gathered some basic knowledge of elementary quantum optics during your studies and know a programming language (e.g. Python) that you would like to improve?
- 🦾 You would like to join our endeavours to study photon correlations?
- 🦾 Then here we are: a quantum hub of researchers exploring photon correlations in versatile systems
- 🦾 QOQI needs you for our Photon Correlation project. No matter if you are interested in a bachelor or master thesis. Feel free to contact us!

Photonscore.
PHOTON COUNTING MADE EASY

FAU

TRR 306

QuCoLiMa
Quantum Cooperativity of Light and Matter

JGU



QOQI Group
by Joachim
von Zanthier

