

The Leibniz Institute for Crystal Growth (IKZ) is a leading research institution in the field of science & technology as well as service & transfer of crystalline materials. Our goal is to enable solutions for pressing societal challenges (e.g. communication, artificial intelligence, climate protection, health, etc.) through modern electronic & photonic technologies. The work covers the entire spectrum from basic and applied research to pre-industrial development and is carried out in cooperation with national and international partners from universities, academies and industry. The institute is part of the Forschungsverbund Berlin (<https://www.fv-berlin.de/>) and a member of the Leibniz Association (<https://www.leibniz-gemeinschaft.de>).

The Leibniz-Institut für Kristallzüchtung currently looking for a

## Master student (m/f/d)

for the **master thesis** topic:

**“Implementation of a TCSPC setup for exciton lifetime measurements in semiconductor quantum wells”**

This master thesis is part of a development project aiming to realize an **on-demand single photon source** for quantum applications. We use specifically designed **semiconductor nanostructures** as optical material. The recombination of optically excited excitons is responsible for the emission of single photons. We employ **ultrasonic, picosecond strain pulses** to trigger the recombination process.

**The topic of the master thesis** is the implementation of a single photon detection scheme in the measurement setup. The setup itself is built around a femtosecond laser system. Specifically, you will integrate a **time-correlated single photon counting (TCSPC)** card in the measurement program and perform exciton lifetime measurements in various samples.

The master thesis will be conducted at the IKZ-DESY JointLab at the DESY campus in Hamburg-Bahrenfeld.

### Good to have:

- Experience with ultrashort lasers and optical equipment.
- Good knowledge of solid-state physics, especially semiconductors and semiconductor nanostructures.
- Good programming skills (preferably C and Python).

For information about the project please contact:

Dr. Peter Gaal ([peter.gaal@ikz-berlin.de](mailto:peter.gaal@ikz-berlin.de))

Daniel Hensel ([daniel.hensel@ikz-berlin.de](mailto:daniel.hensel@ikz-berlin.de))

### Have we aroused your interest?

Then apply directly to the e-mail address provided by Peter Gaal or Daniel Hensel. Applications will be accepted until the position is filled.

**We look forward to receiving your application!**