

POSITION DESCRIPTION

TITLE OF POST: PhD studentship in the fabrication, characterization and optimization of QD-based lasers integrated with waveguides

LOCATION: University of Limerick

REPORTS TO: Professor Ning Liu

Stipend: €25,000 per year for 4 years (tax exempted)

Tuition and fees: Covered for 4 years

Contacts: Please send your cover letter stating why you are suited for this position and a CV with two referee names to ning.liu@ul.ie before **August 29th, 2026**.

QUALIFICATIONS:

Hold either an honours (first or second class (2:1)) master's degree in Physics, Engineering, Material Science, or an honours (first or second class (2:1)) bachelor degree in Physics, Engineering, Material Science, or relevant disciplines.

OVERALL PURPOSE OF THE STUDENTSHIP:

This PhD studentship is funded by Rinn Semiconductors Centre. This project aims to identify new approaches to integrate QDs with waveguides to obtain orange-yellow spectral range laser emissions in integrated photonics. The successful candidate is expected to fabricate, characterize and optimize QD-based lasers and integrate these lasers with low-loss waveguides. In particular, the candidate is expected to develop methods to experimentally fabricate the QD-based lasers and achieve their integration with low-loss waveguides. The successful candidate will be integrated into the Nanophotonics & Nanoplasmonics Group ([ORCID link](#) or [Google link](#)) in the Department of Physics and Bernal Institute at the University of Limerick (UL) and have opportunities to learn from experienced researchers within the group with expertise in both chemical syntheses and optical characterizations. This student will also work closely with researchers at Trinity College Dublin and Tyndall National Institute.

Requirements:

Essential

- Hold either an honours (first or second class (2:1)) Master's degree in Physics, Engineering, Material Science, or an honours (first or second class (2:1)) bachelor degree in Physics, Engineering, Material Science, or relevant disciplines.
- Self-motivated with proven organisational skills to prioritise and deliver agreed objectives.
- Demonstrated strong work ethics and with the ability to work both independently and within a team.
- Taking initiative, being versatile and productive.
- Excellent verbal and written communication skills.
- Good understanding on lasing processes.
- Good understanding on solid state physics.
- Willing to work in a wet lab and/or in micro-fabrication facilities.

Desirable

- Experience working in a wet lab and/or in micro-fabrication facilities.
- Programming, report and paper writing experience.