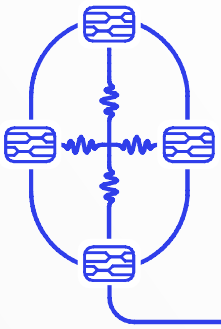
15 PhD students in Distributed Photonic Quantum Computing



Marie Skłodowska-Curie Actions
30 years
Curiosity that changes the world

PHOTONIQC

The Marie Curie Doctoral Network PHOTONIQC offers 15 Doctoral Candidates (DCs) interdisciplinary, intersectoral and international training in the frame of 15 PhD scholarships. The consortium consists of 11 Beneficiaries in 7 European countries hosting ESRs and 18 Associated Partners hosting secondments and providing training.

SCIENTIFIC FOCUS

The scientific focus lies in building a distributed photonic quantum computing platform. We will construct a new generation of components including single-photon sources, reconfigurable photonic chips and efficient number-resolving detectors. Furthermore, we will apply a zero-trust delegated-verification framework to distributed, secure and blind photonic quantum computing protocols. Finally, we will perform first experimental implementations of multi-node distributed quantum computing by interconnecting integrated photonic circuits. The activities include theory, design and numerical simulations, growth, microfabrication, optical characterization and instrumentation.

TRAINING PROGRAMME

The PHOTONIQC training programme is in line with the European Charter for Researchers, the Code of Conduct for the Recruitment of Researchers and the EU Principles for Innovative Doctoral Training. Fellows can choose their position among the offers from the academic and non-academic Beneficiaries. DCs working within industry will be enrolled in a doctoral programme of one of the partaking universities. All fellows will be offered a 3-year employment contract and will start (with some flexibility) in March or June 2027.

PHD PROJECTS

DC1:	Design and modelling of highly efficient single-photon sources
DC2:	Experimental demonstration of highly efficient single-photon sources
DC3:	Spin mediated linear cluster states with GaAs quantum dots
DC4:	Bright and tuneable source of indistinguishable single photons operating at 780 nm
DC5:	Growth of low-noise quantum dot heterostructures
DC6:	Development of low power dissipation large scale integrated quantum photonic circuits
DC7:	High fidelity photon number resolving detectors
DC8:	System architecture for cluster state quantum computing
DC9:	Protocols for secure delegated quantum computing with quantum dot sources and photonic chips
DC10:	Zero-trust verification for delegated & distributed photonic quantum computing
DC11:	Photon distinguishability and the simulability of linear optics
DC12:	Distributed quantum computing with photonic technologies
DC13:	Experimental demonstration of variational quantum algorithms in integrated photonic platforms
DC14:	Experimental delegated quantum computing protocols with linear cluster states
DC15:	Interfacing a quantum dot single-photon source with a cold-atom-based quantum memory

HIRING

All positions are subject to the Marie Curie mobility rule requiring that a candidate must not have resided in the country of the host institution for more than 12 months in the 36 months immediately before their recruitment date. The hiring of DCs takes place individually by applying for a specific DC project. Please see the "DC Profiles" section of the webpage with a link to detailed information about the hiring procedures.

electro.dtu.dk/photoniqc