



III-V/Si quantum-dot materials and devices for Si photonics

III-V quantum-dot lasers grown on silicon substrate to solve the issue of Si's incompatibility with III-V semiconductor materials and devices

Dr Huiyun Liu has built up a wealth of knowledge, extensive experience, and established track record on the development of state-of-the-art semiconductor III-V nanophotonic materials and devices. He focuses on the development of III-V quantum-dot lasers on silicon substrate, which will kick start the long sought for the integration of III-V photonics with silicon electronics. This project brings together a wide range of complementary expertise in the field of semiconductor epitaxial material growth and device fabrication at UCL.

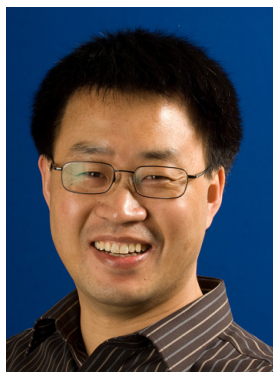
The III-V/Si integration platform will provide the solution for the physical limitation of the on-chip metal interconnects, and has immediate applicability in a wide range of major industrial sectors: information, communication, medical, automobile, defence, sensors, biosensors, green energy, domestic photonics, and environmental diagnostics.

Other technologies that Dr Liu is currently working on include:

Semiconductor III-V quantum dot solar cells, III-V/Si nanowire materials and devices; Low-dimensional III-V materials and devices

Dr Liu's areas of expertise include:

- Molecular Beam Epitaxy;
- Fabrication and characterization of III-V materials and devices
- Semiconductor physics in opto-electronics materials and devices;
- Semiconductor device processing,
- Silicon photonics



Dr Huiyun Liu,
Photonics Group

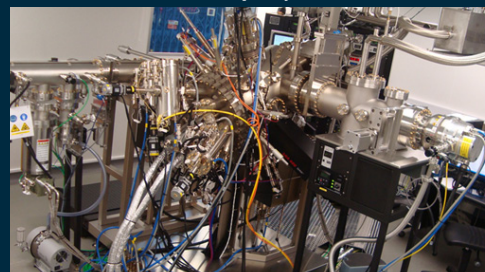
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Applicable to:

- Telecommunications
- Information
- Energy
- Medical
- Defence

Partner Companies:

- Sunflake A/S; IQE Silicon



Contact Details:

Dr Huiyun Liu
Department of Electronic and Electrical Engineering,
University College London,
Torrington Place,
London WC1E 7JE
Email: h.liu@ee.ucl.ac.uk
Tel: +44 (0)20 7679 3983
Fax: +44 (0)20 7388 9325