

A World
Leading SFI
Research
Centre



IPIC SFI Research Centre

IPIC is Ireland's centre of excellence for research, innovation and PhD training in photonics – the science and application of light – which today represents a 0.5 Trillion\$ global industry.



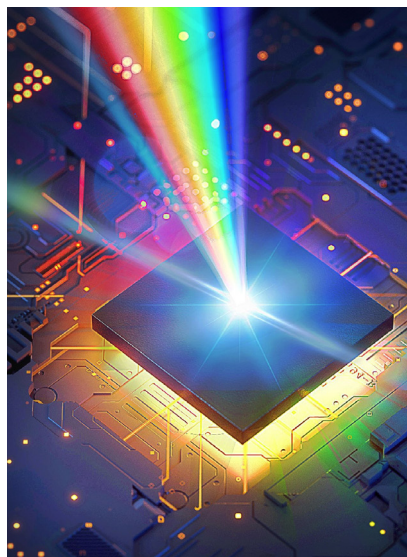
IPIC's integrated research team has competencies in the theory of novel light-emitting materials through to the design of devices and systems. We accelerate transfer from laboratory to market by using our advanced fabrication and packaging capabilities to develop concepts and deliver low-volume manufacturing of prototypes.

Research Areas

Our research focuses on the development of novel photonic integration technologies and their applications in information and biomedical systems. Activities span from photonics theory and materials research, through to device and system fabrication, enabled through our in-house laboratories and semiconductor fabrication and packaging facilities at Tyndall National Institute.

Facilities

- › Modelling and design
- › Materials growth
- › Device fabrication
- › Packaging
- › Device characterisation
- › Systems testing



Research Programmes

Our core Platform Research Programme represents an investment of over €20 million, and is focused on four inter-disciplinary, world leading Research Themes:

- › Monolithic and Heterogeneous Integration - 'Printed photonics on anything'
- › Packaging and Hybrid Integration - 'Breaking the packaging cost barrier'
- › Optical Communications - 'Coherent everywhere: migration of coherent communications to the network edge'
- › BioMedical - 'World's smallest integrated imaging system for guided surgery'

Here we combine the expertise and knowledge from our 17 research groups, with the scale and resources to deliver ground-breaking technology for a wide range of applications, including AR/VR displays, data centres, environmental sensing, medical devices and portable diagnostic systems.

Industry and Commercialisation

We work closely with over 30 industry partners to develop their next generation products, across Ireland's high growth technology sectors such as ICT and MedTech, supporting their attraction to and growth in Ireland. In addition we commercialise our disruptive technologies through start-up companies and co-ordinate the Photonics Ireland National Technology Platform.

HOST INSTITUTION

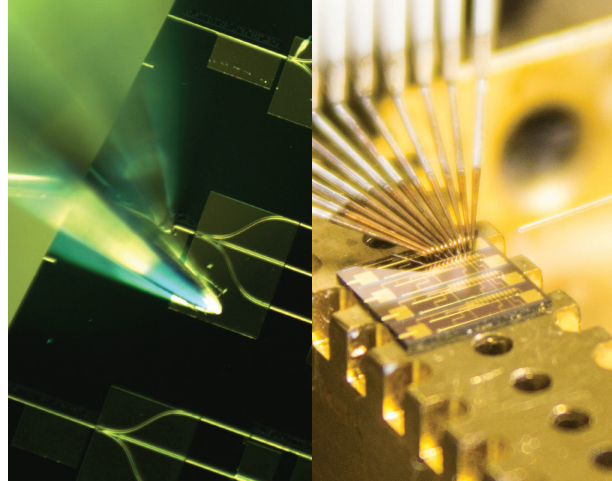


PARTNER INSTITUTIONS



Industry partners include:

- › Analog Devices
- › British Telecom
- › Eblana
- › FazTech
- › Firecomms
- › Hooke Bio
- › Integer
- › Intel
- › mBryonics
- › OEWaves
- › Pilot Photonics
- › Radisens Diagnostics
- › Raydiant Oximetry
- › Rockley Photonics
- › Seagate
- › Synergia Medical
- › Stryker
- › X-Celeprint



Education and Public Engagement:

IPIC, in collaboration with SFI, is involved in many local and national events and initiatives, including Smart Futures and the BT Young Scientist Exhibition. IPIC is dedicated to training highly skilled physicists and engineers and to support the next generation of scientists by showcasing the breadth and depth of career opportunities in STEM to students at all levels. Programmes include:

- › The “Secret Spectrum!” interactive workshop for primary schools.
- › Photonics Explorer Kits which provide innovative experiments in the physics of light and optics for secondary school students.
- › Summer Bursary Programme which provides a 10-week fully immersive internship for physics and engineering undergraduate students.

Key Contacts

Prof Paul Townsend

Centre Director

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Paul Townsend is Professor of Photonic Systems Research in the Department of Physics at University College Cork and Head of Photonics at Tyndall National Institute. He is widely-known for his pioneering work on quantum key distribution in optical networks, and for world-leading demonstrations of high-capacity broadband access networks. His work has led to more than 200 peer-reviewed publications, including 40 invited contributions and 30 registered patents in 16 different families. He is a Fellow of the Institute of Physics and a member of the Photonics 21 Board of Stakeholders.

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