Research Profile

Networks and Communications

The Rince Institute
Researching Innovative Engineering Technologies

Research Focus:

- **Networks and network applications**
- **Photonic devices and sub-systems**

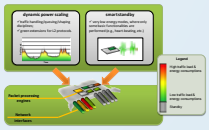
Research Group

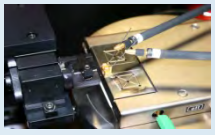
Network Innovations Centre (NIC) Team - Dr. Gabriel-M. Muntean, Dr. Martin Collier, Dr. Xiaojun Wang, Dr. Conor Brennan, Dr. Jennifer McManis. 36 members including 5 faculty, staff, 7 postdocs, 22 PhD researchers and Visiting Researchers

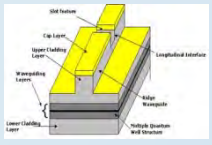
High Speed Devices and Systems (HSDS) Team - Prof. Patrick McNally, Prof. Liam Barry, Dr. Pascal Landais and Dr. Marissa Condon. 32 members including 5 faculty, 1 Sr. Research Fellow, 2 Research Fellows and 22 PhD researchers.

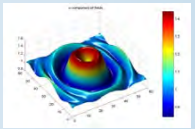
Core Expertise

Design and development of novel solutions for future wired and wireless networks and network applications. Development of innovative devices and technologies for future broadband communications systems.









Key Application Areas

- Wired & Wireless Network performance
- Computation & modelling
- Packet Switched Networks
- High Capacity Networks (Tb/s)
- Broadband Access Networks
- Energy-aware ICT
- Rich content network applicaions

Commercial Experience

Two spin-out companies: **PilotPhotonics and Sonex Metrology.** 10 filed patent applications and 3 Commercial Licences.

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Industry Collaborations include:

eblana photonics, IBM, Achray Photonics, CITADEL100 next generation datacenters, Alcatel·Lucent, intune networks, III-V lab, ECO net, EverSeen Taking retail intelligence to a new level, ERICSSON

Examples of Ongoing Research

- Performance of Mobile and Wireless Communications
- Network Processors
- Switching theory and routing protocols
- RF propagation modelling
- Quality-oriented Adaptive Multimedia Delivery
- Adaptive Web-based Systems
- Tunable laser diodes in optical networks
- Optical frequency combs
- All-optical processing technologies for Tb/s systems
- Hybrid radio/fibre systems for broadband access networks
- Advanced optical signal characterization techniques
- Design of
  - new lasers for THz emission
  - low noise SOA
- Novel single mode lasers for access networks

Where could Rince expertise help other businesses

Network expertise, tools and techniques across the spectrum of hardware, software and systems knowledge required to contribute to innovations that can be deployed for next generation networks.

The sharing of resources, ideas and expertise allows us to put a greater emphasis on real-world validation of research output than other centres of comparable size.

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