

Faculty of Engineering

Summer Research Program 2022-2023

Project Title:

Parallel Lines – Opening up new spectrum for fiber optic communications

Supervisor(s): Dr. Bill Corcoran

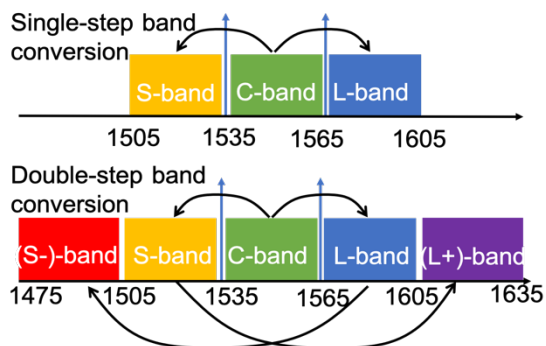
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Objective

We use a relatively small part of the transparency window of optical fibres to communicate over, due to the availability of optical amplifiers over only a few terahertz of bandwidth. We can change this by using wavelength conversion technology to create new parallel lines of communication in new, unused optical frequency bands.



Project Details

You will investigate the use of nonlinear wave mixing in micro-phonic waveguides, to convert optical signals from the standard “C-band” to new, unused bands. This will involve a mix of numerical simulation, and hands-on experimentation with novel photonic chips. You will probe the limitations of this approach, and investigate the use of this technology in optical fibre communications systems. This will feed

into ongoing funded research projects.

Prerequisites

Some communications subject expertise will be appreciated. Applicants with some experience in numerical modelling (e.g. using MATLAB, Python, etc.) will be preferred.

Additional Information

If shortlisted, you will be required to attend an interview, to make sure that the project is a good match for you.