

Laser Colloquium 18.07.2025

Neil Broderick – University of Auckland, New Zealand

Title: Raman based optical Fibre Sensors for geophysical and biophysical applications

Abstract: Optical Fibre sensors are extremely versatile and are able to provide considerable information about temperature, strain and pressure over extended distances. Starting with a general discussion about the properties and types of fibre sensors I will focus on recent experiments that we have performed looking at the temperature and strain profile along the Alpine fault in NZ. This fault which runs the length of the south island periodically produces large earthquakes and has the potential to do so in the future. Hence remote monitoring of it is essential. Then I will discuss our recent work on using surface enhanced Raman sensing for disease detection. This work combines femtosecond machining of gold substrates, Raman sensing and machine learning to provide a valuable diagnostic tool.