

## ***Determination of Nutrients in natural waters using a low-cost microfluidic device***

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Nutrients such as, Ammonia, Nitrite and Nitrate are central in many environmental processes within natural waters, including several microbial, plant and animal metabolic processes. The student will work with a multidisciplinary team to integrate colorimetric chemistries for the detection of ammonia, nitrate and nitrite into a low cost deployable nutrient analyser. The nutrient analyser is based on a combination of microfluidic analytical systems, colorimetric reagent chemistry, low-cost LED-based optical detection, low cost pumps and wireless communications. The work will be focused on the creation of a deployable integrated prototype including testing of a bench top system to optimise detection limits, validation and internal calibration and integration of each aspect of the prototypes operation.

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