MESTECH Research Project

Project Title: Development of a Microfluidic System for Monitoring Biocontamination of Drinking Waters

Project Researcher: Dr. Yuliya Shakalisava

Funding Body: Beaufort Marine Research Awards

Project Summary: This project is targeting the development of an autonomous analytical platform for detecting the presence of potentially harmful biological contamination of drinking water, e.g. through *E. coli*, *cryptospyridium* etc. It will seek to integrate aspects of the PG projects where appropriate, along with other technologies (e.g. electronics, microfluidics, remote communications) with the ultimate goal of deploying a prototype instrument at locations identified by the Marine Institute/EPA as particularly troublesome.

Key Outputs:

- Development and validation of appropriate analytical methods for specific targets suitable for incorporation in the analytical platform
- Development of appropriate microfluidic platform designs
- Integration of the above with required electronics, power and communications within a ruggedized housing to produce a prototype device
- Laboratory trials of the prototype device
- Field Deployment and assessment of the device

Key Impacts:

- Development of new competencies in bioanalytical measurements in microfluidic manifolds in the NCSR
- High impact papers in international journals
- Deployments in real situations with high-media potential
- Prototype system with considerable commercial potential