



Press



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X Do NOT Drink

## Case Study: Novel biosensor for contaminated water

### STFC Innovation Fund

This project was funded by STFC through the Impact Accelerator Account administered by the Innovation Fund. The Innovation Fund aims to facilitate the acceleration of research along the pathway to impact or knowledge exchange. The fund provides flexible support (e.g. develop prototypes, establish new collaborations and enable secondments) for a wide variety of projects from across QMUL.

### The Partnership

Dr Ali Zarbakhsh's research focuses on the development of scattering techniques (neutron and X-ray) to resolve molecular structures at the buried fluid-fluid interface for: electrochemistry, catalysis, transfer, soft matter mixtures and biophysics at liquid-liquid interfaces and has an interest in developing novel biosensors using these techniques.

### The Idea

It is estimated that up to 80% of illnesses are linked to poor water and sanitation conditions.

As populations, pollution and environmental degradation increase, so will the chemical and microbiological contamination of water supplies.

The idea was to develop a novel biosensor prototype for water quality which is portable and eliminates the need for an optical waveguide.

When contaminants are present in the water, the lipid bilayer membranes of the novel biosensor are compromised which leads to the production of a colour change which can be easily detected visually.

### The Outputs

- The prototype offers a simple, safe, self-contained disposable visual detection system that is not reliant on an electrical power source
- The prototype was developed using the STFC ISIS facilities at the Rutherford Appleton Laboratory, Harwell, Oxfordshire
- As a result of this project a patent application has been made for this technology
- QMUL are in discussion with organisations who may wish to develop this prototype further and seeking follow-on funding to develop the technology further.

### Partner quote:

*"This technology represents a fast and effective means to test the safety of drinking water by non-specialists in the field and has the potential to save many lives in low and middle income countries. Preliminary research has already established the scientific principles for a new and viable sensor."*

*Crucially the funding gave me an opportunity to develop my research towards to commercialisation, which in real terms has meant we have started the process of filing a patent for this technology."*

Dr Ali Zarbakhsh , QMUL



