

## Handheld Uranium Detection Device

A portable method to quantify trace levels of uranium in water

Quantifying the amount of radioactive contamination can be a challenging process during environmental and security management. There are several ways to detect radioactive materials such as uranium, but the most common way is by measuring high-energy radioactive decay products. This method works well in high concentration solutions, but fails at low concentration levels in soil or water. Decreased sensitivity by this method occurs since signals are weak and attenuated, therefore making it difficult to measure outside a laboratory.

### The technology

As an alternative to current techniques, researchers at VCU have developed a novel method and device to measure low concentration levels of uranium in water. This device is portable, therefore allowing measurements to occur on-site. It has a greater sensitivity than current techniques where uranium is tested from a single sample directly from a water source. Since the hand-held device is an all-in-one system, results occur within seconds to provide concentration ranges of uranium.

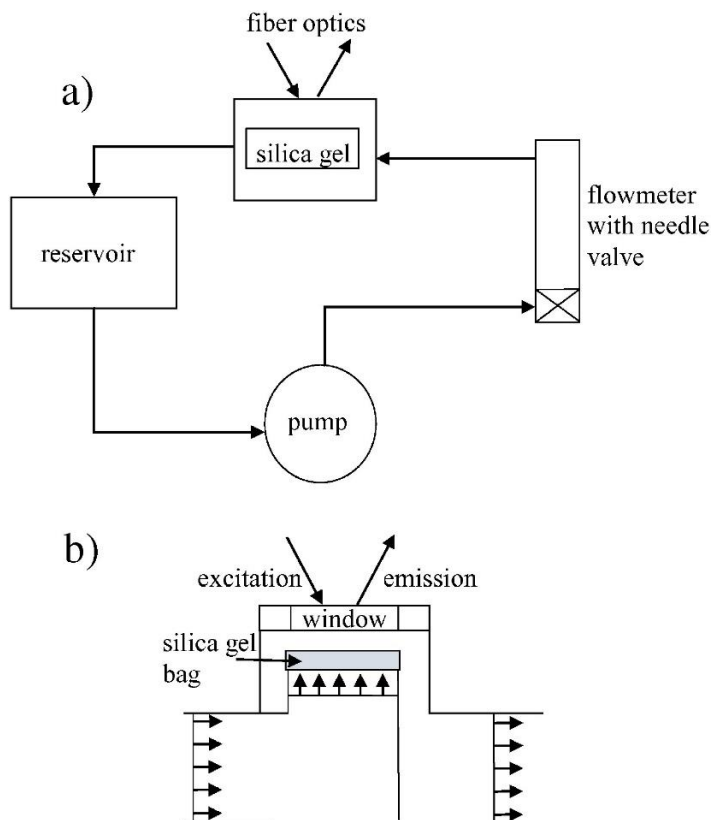


Figure 1. a) Schematic of flow system; b) internal geometry of the silica trainer

### Benefits

- » Greater sensitivity: measuring trace amounts of uranium in water
- » Rapid detection (within seconds)
- » Portable feature allows detection to occur on-site

### Applications

- » Environmental monitoring
- » Defense and security
- » Nuclear waste management

### Patent status:

Patent issued: U.S. rights are available. US10627383B2

### License status:

This technology is available for licensing to industry for further development and commercialization.

### Category:

Engineering, Devices & Methods

### VCU Tech #:

16-028

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### External Resources:

[US10627383B2](#)  
[Dodd, B. M., et al. \(2017\)](#)  
[Dodd, B. M., et al. \(2016\)](#)

### Contact us about this technology

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