



Functional Nanostructures and
Sensors for CBRN Defence and
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Smart and Connected Sensors Network for Water Contamination Monitoring and Situational Awareness

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Abstract

The objective of this investigation is to develop a smart and connected prototype of sensors network for monitoring contaminants in surface and underground water sources globally in real-time. Several prototypes were developed using commercial off the shelf (COTS) sensors that capture data which is communicated to a central command and control center where the data is synthesized and analyzed for an actionable response. We present here prototypes capable of spatially monitoring surface and ground waterborne contaminants in real-time, termed as “Contamination Identification and Level Monitoring Electronic Display Systems (CILM-EDS) prototype. We also present a concept under development using unmanned aerial vehicle (UAV) equipped with hyperspectral imagers and Laser-induced Breakdown Spectroscopy (LIBS), as an innovative platform to monitor and provide enhanced situational awareness in support of safety and security. The new UAV sensor platform (UAVSP) under development, has airborne COTS technology to capture relevant information from surface waters at several otherwise inaccessible Domains of Interest (DOI).