

# Environmental and Water Resources Engineering



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## Forward Thinking PFAS Solutions: From Waste Remediation to Safer Substitutes

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### Abstract

Separating PFAS from water and ultimately degrading them into products that lack carbon-fluorine bonds will be important for decontaminating our water resources. Yet conventional treatment methods have critical deficiencies, such as low affinity toward short-chain PFAS, and are impacted by background organic and inorganic constituents. This talk will cover some of the emerging technologies that show promise to solve some of these challenges. Meanwhile, new chemical formulations are being tested to replace PFAS-containing fire-fighting foams in several applications. Investigating the impacts of novel PFAS-free foams on environmental and human health is necessary to ensure they are safer than PFAS foams and prevent a potential global widespread contamination in the future. This talk will also highlight the proactive approaches that we are proposing to allow making evidence-based decisions regarding the safe implementation of the new alternative chemicals.

### Background

Dr. Mohamed (Moha) Ateia Ibrahim is Group Leader with the U.S. EPA, Office of Research and Development. Moha combines his expertise in environmental chemistry and materials chemistry to develop and evaluate innovative water treatment technologies to remove and/or degrade emerging contaminants, such as PFAS and microplastics. In parallel, Moha has initiated and is currently leading a multi-agencies project to evaluate the environmental impacts of PFAS-replacement chemicals and formulations in firefighting foams and consumer products. He is a member of the Weapons Systems and Platforms Technical Committee of fluorine-free foams (F3) for the U.S. Department of Defense's SERDP-ESTCP Program. Moha is also an Adj. Assistant Professor at Chemical & Biomolecular Engineering Department, Rice University.

