



Publication

Molecular detection of per- and polyfluoroalkyl substances in water using time-of-flight secondary ion mass spectrometry

In [an article](#) published in the journal *Frontiers in Chemistry*, Haley & Aldrich's [John Xiong](#) and co-authors from Oak Ridge National Laboratory, the Pacific Northwest National Laboratory, and Shandong Normal University in China share their research into a new analytical method to detect [per- and polyfluoroalkyl substances \(PFAS\)](#). They found that time-of-flight secondary ion mass spectrometry (ToF-SIMS) — a simpler-to-use, more sensitive technique than other PFAS detection methods — could measure PFAS in water at very low concentration levels and without complicated sample preparation.

The detection of PFAS — per- and polyfluoroalkyl substances — “is crucial in environmental mitigation and remediation of these persistent pollutants,” the authors write. Their article, “Molecular detection of per- and polyfluoroalkyl substances in water using time-of-flight secondary ion mass spectrometry,” traces their study of several PFAS and samples from monitoring wells at a municipal wastewater plant in Southern California. Their results indicate that ToF-SIMS “is a viable technique to analyze and identify these substances at parts per trillion (ppt) level in real field samples without complicated sample preparation due to its superior surface sensitivity.”-

John leads Haley & Aldrich's [Applied Research program](#) and has conducted extensive research into PFAS detection and remediation.—

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