

#### **Track 4. Chemistry and Exposure Assessment**

### **Challenges in PFAS Analyses and Detection**

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Per- and polyfluoroalkyl substances (PFAS) have garnered significant attention due to their persistence, bioaccumulation, and potential health risks. This session aims to bring together experts from diverse fields to discuss the multifaceted challenges associated with PFAS analyses ultimately aiming to advance our understanding of PFAS contributing to effective environmental and health management.

We will delve into the complexities of analyzing PFAS in various matrices, explore state-of-the-art and novel techniques for sample preparation and detection, and address the evolving landscape of analytes and detection limits. Key topics will comprise for instance matrix diversity: PFAS occur in a wide range of matrices, including water, soil, biological matrices or food. We invite experts to will share their experiences in handling these diverse sample types and the unique challenges they pose. In this context efficient sample preparation is crucial for accurate PFAS analysis. Presenters will discuss extraction methods, such as solid-phase extraction (SPE), and matrix-specific considerations. Especially time- and resource efficient automated techniques supporting more accurate and sustainable lab-practices are increasingly in demand. From liquid chromatography-mass spectrometry (LC-MS) to high-resolution mass spectrometry (HRMS), the most appropriate and precise PFAS detection techniques will be discussed, while addressing challenges related to selectivity, sensitivity, and interference.

Furthermore, the list of routinely analyzed compounds from the PFAS family continues to expand. New compounds are discovered or known compounds are added due to their recently recognized significance. The challenges of keeping up with this ever-growing list of analytes should be addressed. As importantly, regulatory requirements demand lower detection limits. Speakers are invited to share strategies for achieving ever-decreasing detection levels while maintaining analytical accuracy and robustness.