FLUORINE AND FLUORINATED COMPOUNDS – METHODS FOR DETERMINATION (OVERVIEW). **Andrea Raab** and TESLA (trace element speciation lab Graz), University of Graz, Austria. (andrea.raab@uni-graz.at)

Fluorinated compounds, often called forever chemicals, are nowadays talked about everywhere. The major reasons for this are their widespread use, their environmental persistence and their known or suspected health effects. From an analytical point of view these compounds present several challenges. For one this group is highly diverse. It ranges from molecules containing only one fluorine to fully fluorinate compounds. For known ionisable compounds with available standards LC-ESI-MS/MS is a suitable technique often reaching the required sensitivity. For unknown compounds or such that do not ionise in ESI determination is a significant problem. Tackling the problem from the elemental side using fluorine detection is not easy either. The techniques for detecting fluorine are not yet well established and not very sensitive. Fluoride can be detected using either a fluoride sensitive electrode or a conductivity detector combined with an anion exchange LC. The determination of organo-fluorines is not possible with these techniques. Combustion ion chromatography (CIC), molecular absorption spectrometry (CS-MAS) and ICPMS/MS allow the detection of fluoride and organo-fluorine compounds. The latter also in combination with separation methods. All these “elemental” methods still lack sensitivity and to some extent at least reliability. In the presentation some of these techniques, their possibilities in actual applications and their associated problems will be shown.