

Application of stripping voltammetry for the simple and fast determination of trace metal ions in environmental water sample

Hosting institution: Faculty of Chemistry, Maria Curie-Skłodowska University, Lublin, Poland

Minimum duration: 2 weeks and max. 4 weeks

The STSM will give the applicant the possibility to be trained in the two following subjects:

Development of trace metal ions determination procedures using stripping voltammetry technique. Stripping voltammetry techniques, such as adsorptive stripping voltammetry (AdSV) or anodic stripping voltammetry (ASVS) are low cost, simple and very sensitive methods for the analysis of trace concentration of metal ions in the solution. A key element of AdSV and ASV procedures is the selection of working electrode on which the determined metal is accumulated and in the case of AdSV procedures additionally it is very important to choose the complexing agent with which the metal can form an electroactive complex. I have elaborated so far several dozen voltammetric procedures for the determination of numerous metal ions using different working electrodes and different complexing agents. During STSM it will be possible to get practical knowledge about AdSV and ASV procedures for metal ions determination using various working electrodes.

Elimination of interferences connecting with analysis of environmental water samples using ASV and AdSV procedures. One of the main problems during the ASV and AdSV analysis of environmental water samples is the presence of organic substances in such samples, such as surface active and/or humic substances. These chemical compounds are willing to adsorb on working electrode blocking its surface and consequently causing decrease or total decay of signal of determined metal. In my research work I developed solutions that enabled considerable reduction of organic matrix interferences using resins or a special way of carrying out the step of accumulating determined metal on the working electrode. During STSM it will be possible to get practical knowledge concerning elimination of interferences connecting with the presence of organic matrix of environmental water samples.

Requirements: no specific requirement.