

Electrochemical techniques in laboratory: cyclic voltammetry

Short course – IPCMS, Strasbourg

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Cyclic voltammetry (CV) is perhaps the most versatile and employed electrochemical technique to investigate the electron transfer mechanism of redox systems. However, approaching a CV experiment in the laboratory for the first time with little or no background in electrochemistry can be quite difficult. In this short course we will provide the basics of the theory underlying a CV experiment in aprotic organic solvent, and an in-depth discussion about the experimental set-up and about the “how/what-to-do” practically when in the laboratory. The theory will focus on the following topics: electrochemical cells, electrodes and potentiostats; faradaic and non-faradaic processes, kinetics of electrode reactions; mass transfer; potential sweep methods. The idea is to convey the basic principles to allow the students carrying out their own CV experiment. To this end, they will learn how to properly set up an electrochemical cell, evaluate the most important parameters, while investigating the electrochemical behavior of a redox couple (eg. Ferrocene/Ferricenium and other metal complexes or organic compound), and gather the results in a meaningful report.

When: Monday 18/9 at 9:30 (2 h) and Tuesday 19/9 at 9:30 (2 h)

Where: Room 74, IPCMS