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RECENT ADVANCES IN STRIPPING VOLTAMMETRY USING STRUCTURED FILM ELECTRODES

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Metal-film electrodes have gained wide interest in trace analysis due to their favourable performance, fast and reliable response and simple and fast fabrication[1]. Among the most widely employed electrochemical techniques stripping voltammetry is usually employed when the analyte of interest can be electrochemically accumulated on the surface of the modified working electrode.

Since 2000 bismuth[2] and later antimony[3] film electrodes revealed pertinent for trace heavy metal detection associated with performance similar to the mercury based electrodes. These electrodes offer low background and operation in the presence of dissolved oxygen in the measurement solutions.

In this presentation, we will focus on an alternative method for preparing nanostructured metal films employing different pulse techniques for electrodeposition. In addition, nanostructured electrode surfaces will be obtained also by electrodeposition of suitable metal film on electrode surface modified with carbon nanotubes or ionic liquid-modified carbon nanotubes. It will be shown that structured metal film electrodes significantly improve the electroanalytical performance compared to normal deposition techniques. Structure and morphology of such metal films will also be carefully evaluated.

KEYWORDS: electrodeposition, stripping voltammetry, trace analysis

REFERENCES: