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Recent advances in electrochemistry by scanning electrochemical microscopy

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Highlights

- We reviewed the development of Scanning electrochemical microscopy and its application in recent years
- We summarized the innovation on the probe and the advantages of coupling techniques.
- We focus on the progress in photoelectric imaging and biological analysis.

Abstract

Scanning electrochemical microscopy(SECM) has made great progress in recent years with respect to both technology and applications. This manuscript is an expansion of the review published in Analytica chimica acta in the year of 2007 by our group.

The review briefly presents the principle and instrumentation of SECM. Then we focus on the application of SECM in several areas such as charge transfer，solar cells，imaging，bioanalysis in recent years. SECM can capture real time (electro)chemical information at a micro interface which helps us to explore the microscopic world. SECM is also employed to investigate the complicated electron transfer system and biosamples. Last seven years literature infers SECM is a comprehensive characterization tool when it is combined with other techniques.

Keywords: SECM, ultramicroelectrode, interface, imaging, bioanalysis

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