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Recent Nanoarchitectures in Metal Nanoparticle-modified Electrodes for Electroanalysis

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(Received October 30, 2009) (Accepted December 11, 2009)

Increasing attention has been devoted to the use of metal nanoparticles (NPs) for electroanalysis. To make the best use of the electrocatalytic and electron-conducting characteristics of metal NPs, various nanoarchitectures have been developed for modifying metal NPs on electrode surfaces. In this review, at first recent nanoarchitectures with metal NPs for modifying electrodes are summarized together with the results of electrochemical analysis. Then, the progress of a seed-mediated growth method that we developed for modifying electrode surfaces is shown as an example that the nanoarchitectures of metal NPs are possible without using organic linker molecules. This approach should be effective for further functional modifications of the surfaces of metal NPs as well as the electrochemical analysis with lower charge-transfer resistance.

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To cite this article:

Munetaka OYAMA, *Anal. Sci.*, Vol. 26, p.1, (2010).

doi:10.2116/analsci.26.1 JOI JST.JSTAGE/analsci/26.1

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