

Accepted Manuscript

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PII: S0925-4005(17)31740-9
DOI: <http://dx.doi.org/10.1016/j.snb.2017.09.074>
Reference: SNB 23165

To appear in: *Sensors and Actuators B*

Received date: 29-4-2017
Revised date: 6-9-2017
Accepted date: 12-9-2017

Please cite this article as: Tianrong Zhan, Jingxia Kang, Xianjun Li, Lei Pan, Guangjiu Li, Wanguo Hou, NiFe layered double hydroxide nanosheets as an efficiently mimic enzyme for colorimetric determination of glucose and H₂O₂, Sensors and Actuators B: Chemical <http://dx.doi.org/10.1016/j.snb.2017.09.074>

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NiFe layered double hydroxide nanosheets as an efficiently mimic enzyme for colorimetric determination of glucose and H₂O₂

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Highlights:

- The ultrathin NiFe-LDHNS were prepared by exfoliating bulk LDH in L-asparagine aqueous medium.
- The NiFe-LDHNS display ca. 200~300 nm lateral size and less than 2 nm thickness with broken edges.
- The NiFe-LDHNS exhibited the superior peroxidase-like activity to the bulk NiFe-LDH.
- The NiFe-LDHNS were employed to fabricate a non-enzyme H₂O₂ and glucose biosensor.

Abstract:

The ultrathin NiFe-layered double hydroxide nanosheets (NiFe-LDHNS) were prepared by exfoliating bulk LDH in L-asparagine aqueous medium. The transmission electron microscopy and atomic force microscopy results reveal that NiFe-LDHNS have about 200~300 nm lateral size and less than 2 nm thickness with the broken edges rather than the original hexagon of hydrotalcite. The peroxidase-like activity of the 2D NiFe-LDHNS was investigated by using oxidation of the

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