

Ruthenium Ion-Complexed Graphitic Carbon Nitride Nanosheets Supported on Reduced Graphene Oxide as High-Performance Catalysts for Electrochemical Hydrogen Evolution



Yi Peng



Wanzhang Pan



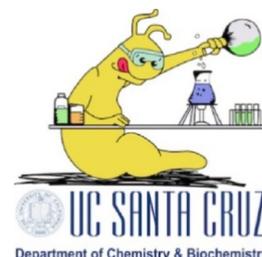
Nan Wang



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Prof. Dr. Shaowei Chen



Invited for this month's cover is the group of Prof. Dr. Shaowei Chen at the University of California, Santa Cruz. Based on the Chinese legend of Niulang (牛郎) and Zhinü (织女), the image shows a hybrid consisting of reduced graphene oxide and ruthenium ions-complexed graphitic carbon nitride nanosheets that can serve as effective catalysts toward the hydrogen evolution reaction. The Full Paper itself is available at 10.1002/cssc.201701880.

What prompted you to investigate this topic/problem?

Organometallic complexes have been used extensively as effective electrocatalysts for the hydrogen evolution reaction and the catalytic activity is generally ascribed to the formation of metal–organic coordination bonds (e.g., M–N, M–S, etc). Such chemical bonds can also be formed with doped carbon nanostructures such as graphene and carbon nitride nanosheets. In this study, we demonstrate that indeed such nanostructured materials may serve as high-performance catalysts with a deliberate selection of metal ions and substrate support.

What other topics are you working on at the moment?

The work in the Chen lab is centered around functional nanomaterials. Currently, we are working on four projects: i) impacts of metal–ligand interfacial bonding interactions on nanoparticle charge-transfer dynamics; ii) high-performance catalysts for electrochemical energy conversion and storage; iii) Janus nanoparticles by interfacial engineering, and iv) antimicrobial activity of functional nanomaterials.

Who designed the cover?

Yi Peng designed the cover. Yi is an aficionado of Chinese classics. He is also a serious poet and very good at spicy Sichuan cuisine. He enjoys spending his spare time doing chemistry research in the lab.

Acknowledgements

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