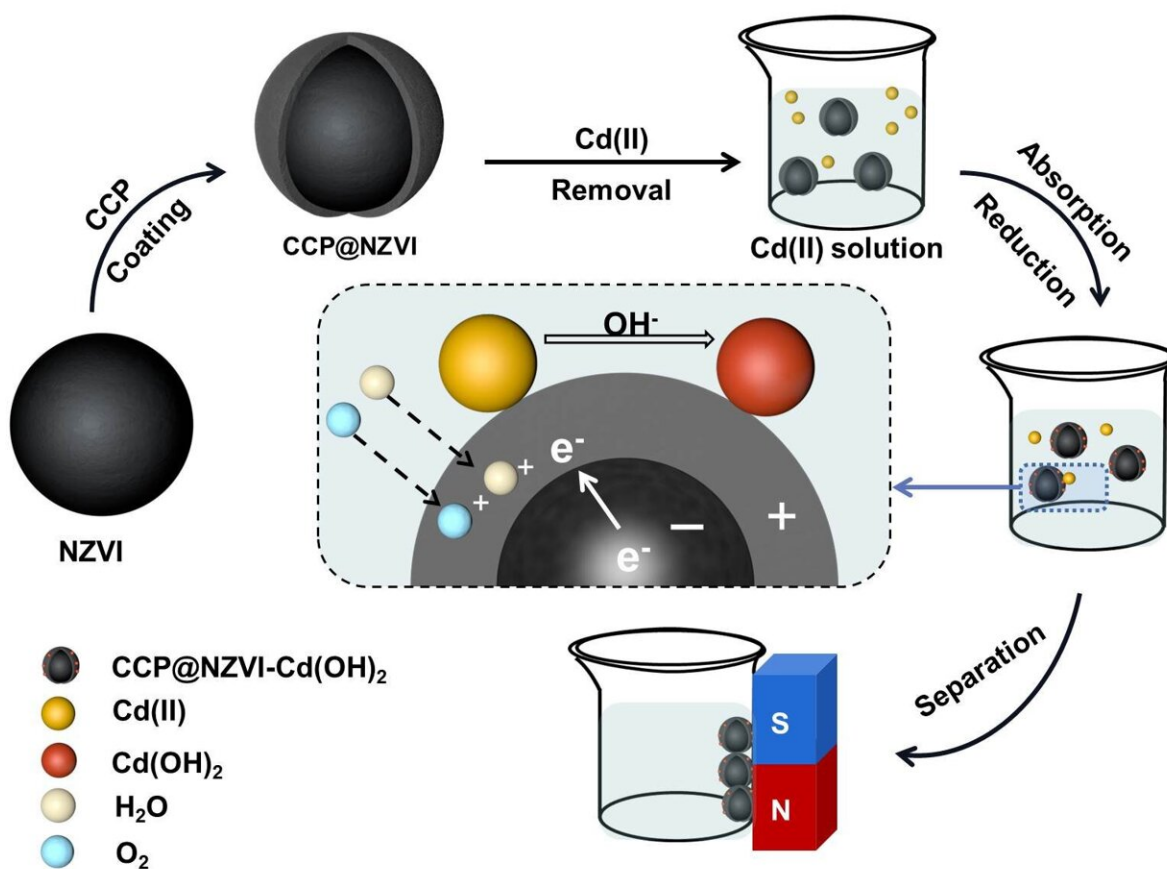


Iron-based primary battery realizes rapid remediation of heavy metal-contaminated water

January 20 2022, by Zhang Nannan



Schematic illustration of removal mechanism. Credit: Guo Xinyue

In a recent study published in the *Journal of Environmental Chemical*

Engineering, researchers report a promising remedy for the rapid and efficient removal of cadmium ion Cd(II) in water, which is a step forward in heavy metal pollution remediation.

Researchers from Wu Zhengyan and Zhang Jia's team at the Hefei Institutes of Physical Science (HFIPS) of the Chinese Academy of Sciences (CAS), in collaboration with Prof. Cai Dongqing from Donghua University, have integrated nanoscale zero-valent iron with conductive carbon paint to fabricate a primary battery nanosystem and found the [nanocomposite](#) removed Cd(II) in [water](#) quickly.

Water contaminated by heavy [metal](#) ions has become a worldwide environmental risk for years. Cd(II) is a typical heavy metal ion drawing much concern because of its high toxicity. Developing an economical and environmentally friendly restoration technology remains a huge challenge.

In this study, the researchers revealed the mechanism by studying the interaction between nanocomposites and Cd(II), following an investigation in the removal performance of the nanocomposites under different conditions. Additionally, the biosafety of this strategy was evaluated and the results were proved satisfying.

This study provides a low-cost and environmentally friendly technology for the rapid removal of Cd(II) from water, which has broad application prospects in the environmental field.

More information: Xinyue Guo et al, Rapid remediation of Cd(II)-contaminated water using a magnetically collectable iron-based primary battery, *Journal of Environmental Chemical Engineering* (2022). [DOI: 10.1016/j.jece.2022.107191](https://doi.org/10.1016/j.jece.2022.107191)

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