



Sřredoevropský technologický institut, výzkumná skupina Chytré nanostroje
 Laboratoř metalomiky a nanotechnologií, Mendelova univerzita v Brně



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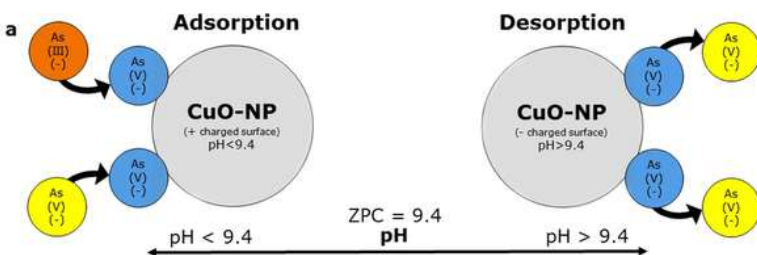
Vás zve na seminář:

Intrinsic properties of cupric oxide nanoparticles enable effective filtration of arsenic from water

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Abstract

The contamination of arsenic in human drinking water supplies is a serious global health concern. Despite multiple years of research, sustainable arsenic treatment technologies have yet to be developed. This study demonstrates the intrinsic abilities of cupric oxide nanoparticles (CuO-NP) towards arsenic adsorption and the development of a point-of-use filter for field application. X-ray diffraction and X-ray photoelectron spectroscopy experiments were used to examine



adsorption, desorption, and readsorption of aqueous arsenite and arsenate by CuO-NP. Field experiments

were conducted with a point-of-use filter, coupled with real-time arsenic monitoring, to remove arsenic from domestic groundwater samples. The CuO-NP were regenerated by desorbing arsenate via increasing pH above the zero point of charge. Results suggest an effective oxidation of arsenite to arsenate on the surface of CuO-NP. Naturally occurring arsenic was effectively removed by both as-prepared and regenerated CuO-NP in a field demonstration of the point-of-use filter. A sustainable arsenic mitigation model for contaminated water is proposed.

04. 09. 2015, 14:00 h Department of Chemistry and Biochemistry and Central European Institut of Technology in Brno, room D06, contact: kizek@sci.muni.cz