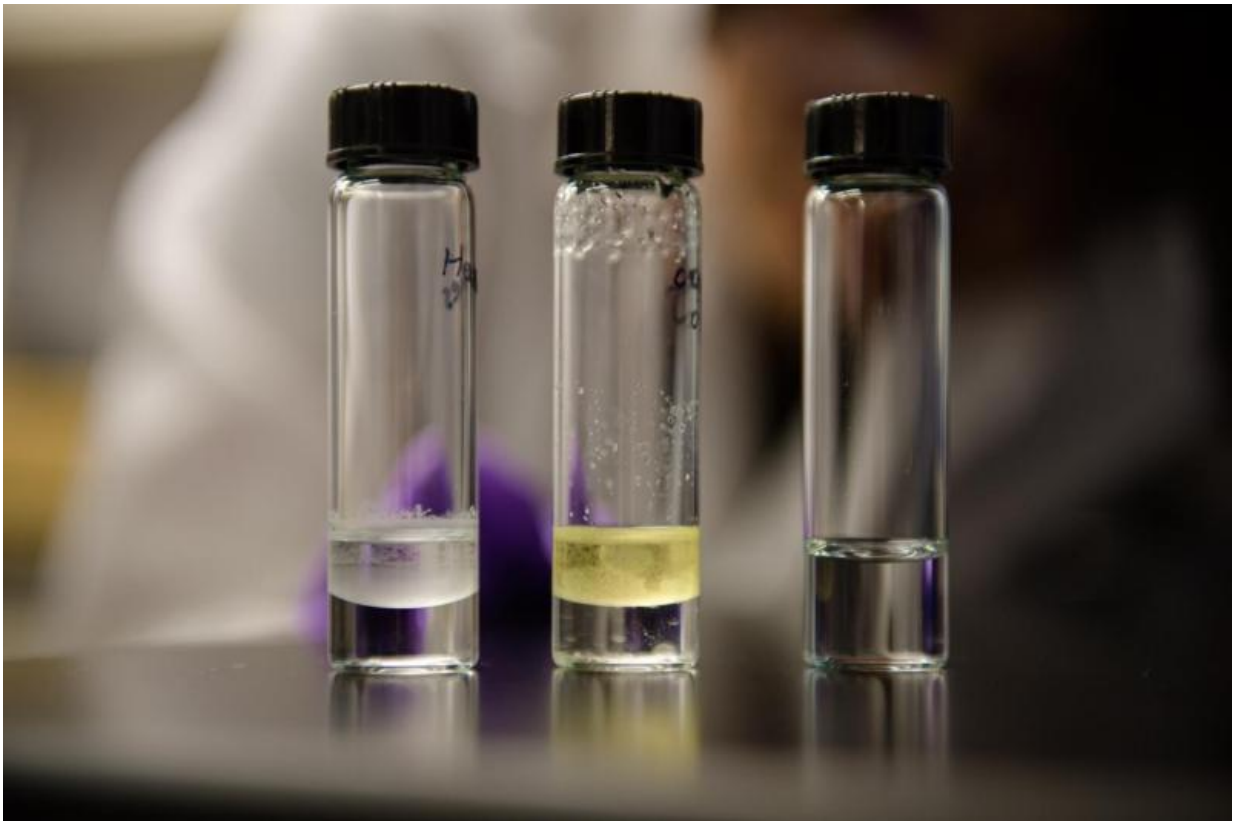


Shaking the nanomaterials out: New method to purify contaminated water

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After shaking, the oil and water in the vial separate, trapping unwanted nanomaterials in the bottom of the oil layer. Credit: Michigan Tech, Sarah Bird

Purifying water and greening nanotechnology could be as simple as shaking a vial of water and oil. At least that's the case for a new method

to clean contaminated water full of unwanted nanomaterials.

Nano implies small—and that's great for use in [medical devices](#), beauty products and smartphones—but it's also a problem. The tiny nanoparticles, nanowires, nanotubes and other nanomaterials that make up our technology eventually find their way into water. The Environmental Protection Agency says more 1,300 commercial products use some kind of nanomaterial. And we just don't know the full impact on health and the environment.

"These materials are very, very tiny and that means if you try to remove them and clean them out of [contaminated water](#), that it's quite difficult," says Dongyan Zhang, a research scientist at Michigan Technological University. She adds that techniques like filter paper or meshes often don't work.

Instead, shaking up oil and water traps the nanomaterials, which can be easily removed. The process clears out nearly 100 percent of nanowires, nanosheets, nanotubes and other one- and two-dimensional nanomaterials. Only zero-dimensional nanospheres are still too small to grab.

The study came out recently in the American Chemical Society's journal *Applied Materials and Interfaces*.



Physics researchers Yoke Khin Yap (not pictured), Dongyan Zhang and Bishnu Tiwari have come up with a simple way to remove nanomaterials from contaminated water. Just shake them out. Credit: Michigan Tech, Sarah Bird

More information: Bishnu Tiwari et al. A Simple and Universal Technique To Extract One- and Two-Dimensional Nanomaterials from Contaminated Water, *ACS Applied Materials & Interfaces* (2015). [DOI: 10.1021/acsami.5b07542](https://doi.org/10.1021/acsami.5b07542)

Provided by Michigan Technological University

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