A magnetic method to clean PFAS contaminated water

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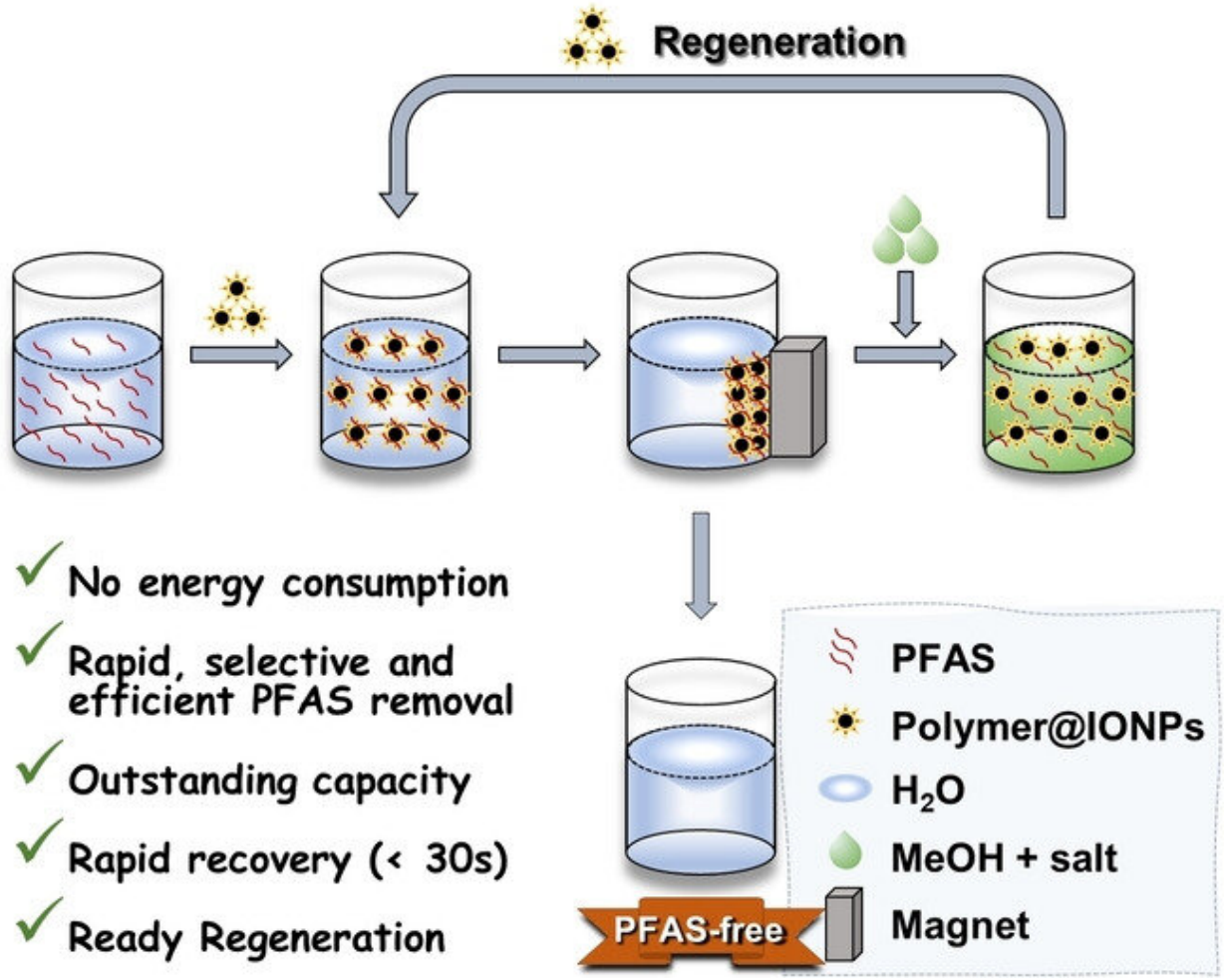


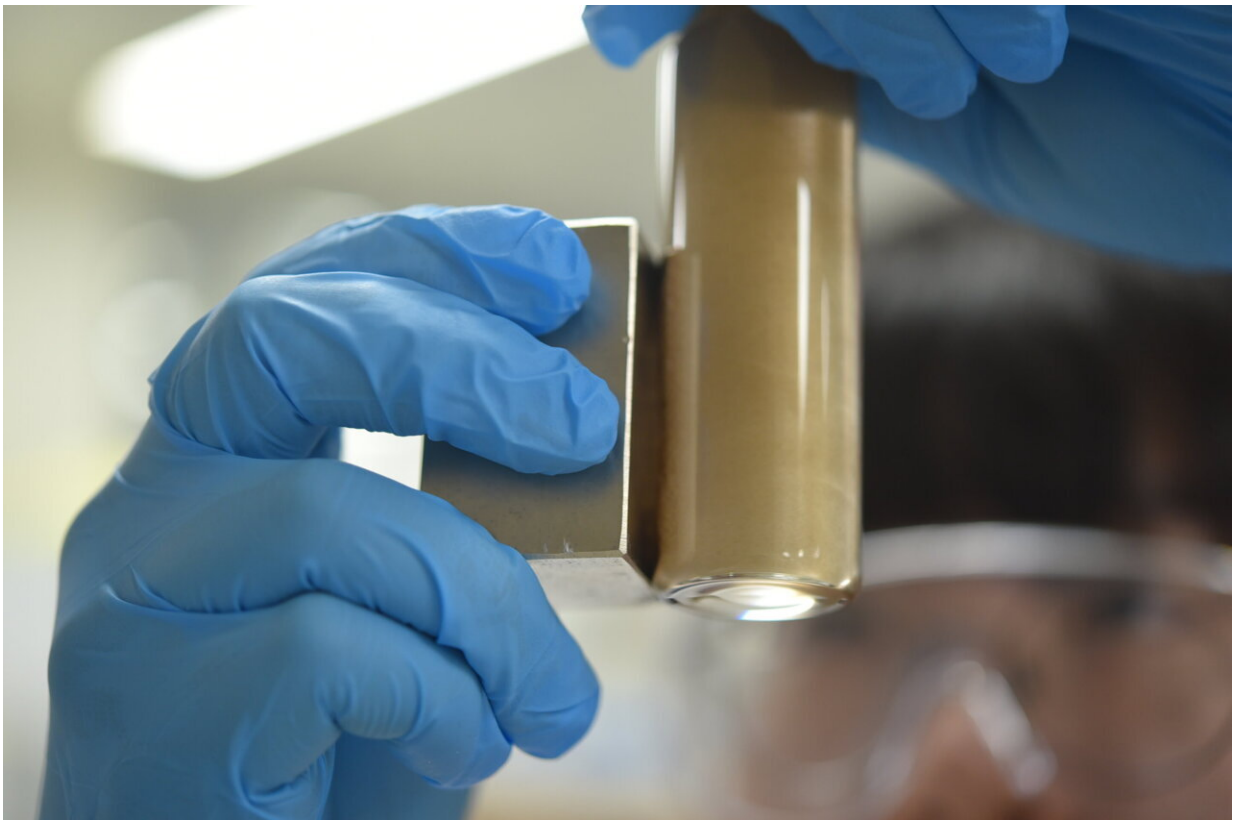
Graphical Abstract. Credit: *Angewandte Chemie International Edition* (2022). DOI: 10.1002/anie.202213071

Researchers at The University of Queensland have pioneered a simple, fast and effective technique to remove PFAS chemicals from water.

Using a magnet and a reusable absorption aid that they developed, polymer chemist Dr. Cheng Zhang and Ph.D. candidate Xiao Tan at the Australian Institute for Bioengineering and Nanotechnology have cleared 95 percent of per- and polyfluoroalkyl substances (PFAS) from contaminated water in under a minute.

"Removing PFAS chemicals from contaminated waters is urgently needed to safeguard public and environmental health," Dr. Zhang said, "But existing methods require machinery like pumps, take a lot of time and need their own power source."

"Our method shows it is possible to remove more of these chemicals in a way that is faster, cheaper, cleaner, and very simple. Because our process does not need electricity, it can be used in remote and off-grid communities."



Researchers at UQ's Australian Institute for Bioengineering and Nanotechnology have developed a way to remove PFAS chemicals from water using a magnet. Credit: University of Queensland

PFAS substances are synthetic compounds used in industry and consumer products since the 1950s, but they persist in the environment potentially leading to human health problems.

The PFAS removal technique developed by Dr. Zhang and Mr. Tan involves treating contaminated water with a new solution, called a magnetic fluorinated polymer sorbent.

"This solution that we developed coats the PFAS particles and then we can use a magnet to attract, isolate and remove them," Dr. Zhang said.

"The solution itself can be reused up to 10 times. Our team will now scale up the testing and we hope to have a commercially available product ready in the next three years."

The study has been published in *Angewandte Chemie International Edition*.

More information: Xiao Tan et al, Efficient Removal of Perfluorinated Chemicals from Contaminated Water Sources Using Magnetic Fluorinated Polymer Sorbents, *Angewandte Chemie International Edition* (2022). DOI: 10.1002/anie.202213071

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