



Clothes washing is a major source of microplastics | Photo source Pixabay

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FILTRATION SYSTEM USES SOUND WAVES TO REMOVE MICROPLASTICS

● SCIENCE

Japanese scientists developed what they call a bulk acoustic wave (BAW) system, which uses piezo vibrations to remove microplastic-laden wastewater from washing machines

Spotted: New studies have found microplastics – minuscule particles of plastic that are shed by synthetic fabrics and other materials – in virtually every body of water on earth. While filters can remove the contaminants from sources like washing machine wastewater, these can clog easily and need to be cleaned regularly. Now, a new system uses sound to remove the particles instead.

In research performed at Japan's Shinshu University, scientists developed what they call a bulk acoustic wave (BAW) system, which uses piezo vibrations. Microplastic-laden wastewater from the washing machine is channelled into three streams.

A piezoelectric device is used to apply acoustic waves on either side of the channels, creating a standing acoustic wave in the middle stream. The acoustic waves 'push' the micro-fibres into the middle channel, which can then be directed to a collection point, which the clean water can proceed into the sewer system.

In lab tests, the researchers found that the system captured 95 per cent of PET (polyethylene terephthalate) fibres, and 99 per cent of Nylon 6 fibres, both major sources of microplastics. Lead researchers, professors Hiroshi Moriwaki and Yoshitake Akiyama, plan to focus next on adding more channels to speed up the process and allowing it to capture a wider range of particle diameters.

As concern has grown for the health of the world's oceans and other bodies of water, so to have innovations aimed at tackling some of the problems. At Springwise, we have recently seen a number

of innovations aimed at improving the health of the oceans. These include anchor buoys that can filter out [microplastics](#) and biodegradable [sequins](#).

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Takeaway:

Microplastics are being increasingly recognised as a massive environmental issue. However, wastewater treatment plants are currently unable to capture them. In addition to fitting a BAW system to washing machines, it may also be possible to upscale Moriwaki and Akiyama's system for use in wastewater treatment plants. This could help prevent microplastics from reaching the ocean in the first place. The only permanent solution is to stop using artificial fibres, which is impractical, so the BAW system may be the next best solution.