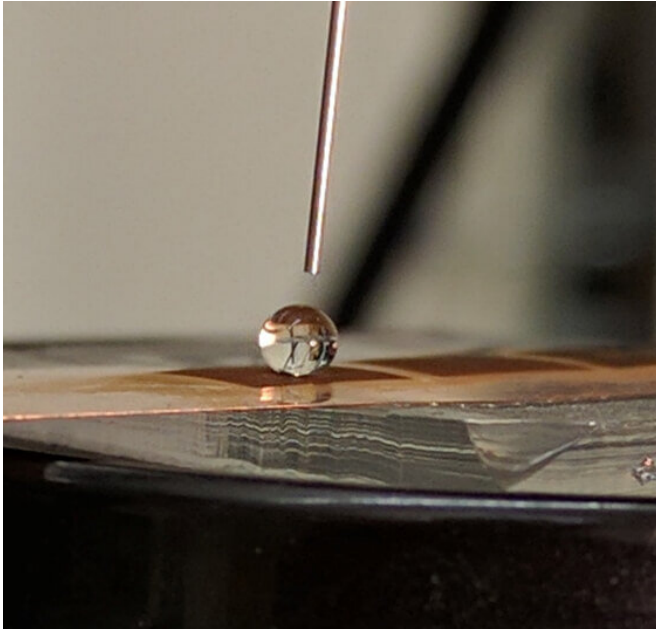


# New technology may help repel water, save lives through improved medical devices

22 August 2019, by Chris Adam



This image shows a water drop on a created superhydrophobic surface, showing a very high contact angle. Purdue University researchers developed a new manufacturing process for creating internal hydrophobic surfaces for microchannels. Credit: Purdue University

Imagine a better windshield that easily repels water and requires less wiping. Now imagine if that same technology could allow doctors to better detect disease or abnormalities in patients.

Purdue University researchers have made new advancements in a [manufacturing process](#) they developed that creates super-small channels to repel water and improve medical, electronic and other devices.

"Our technology provides an innovative way of creating superhydrophobic, or non-water-resistant, non-[flat surfaces](#) on metallic and polymer materials," said Yung Shin, the Donald A. and Nancy G. Roach Professor of Advanced

Manufacturing in Purdue's College of Engineering. "There is no other current technology available for creating internal hydrophobic surfaces for microchannels in a cost-effective way."

The Purdue method creates small channels where [water](#) cannot stick to the surface or gives little resistance in the flow. Water or other liquids can be sent through and create smaller cooling channels and microfluidic devices.

"The technology has many potential applications especially in the biomedical and electronic industries," Shin said. "It provides more effective cooling options than conventional methods and helps reduce the overall size of biosensors and other [medical devices](#) that use circulating fluid to detect unhealthy conditions in a patient."

Shin said the team also sees applications for the technology and manufacturing process in self-cleaning surfaces, airplane micro hydraulics and windshields.

Shin's team uses a two-step process to create the [superhydrophobic surfaces](#). First, the researchers create patterns or features on a metal surface with an ultra-fast laser. Then, in a process called transfer molding, the researchers create that same pattern on the polymer.

Provided by Purdue University

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