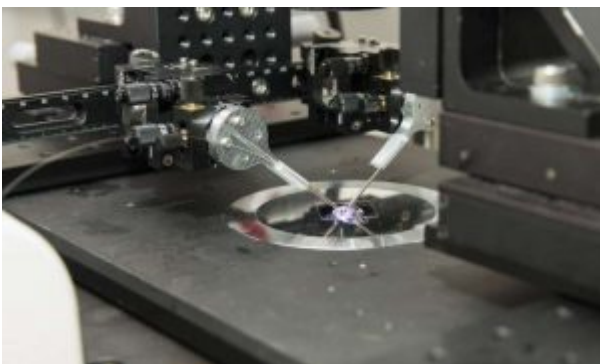


# Researchers taking optical device out of the lab and into the clinic to detect cancer at its earliest stages

In a paper published in Nature Scientific Reports, a team of researchers at Worcester Polytechnic Institute (WPI) has demonstrated how a device that uses beams of light to grip and manipulate tiny objects, including individual cells, can be miniaturized, opening the door to creating portable devices small enough to be inserted into the bloodstream to trap individual cancer cells and diagnose cancer in its earliest stages.

The technique, known as optical tweezers, uses optical beams of laser light to create an attractive force field that can hold, or trap, small objects in place without physical contact. Traditional optical tweezers focus the light with a large and expensive lens, which makes the device bulky and susceptible to environmental fluctuations. These limitations make optical tweezers impossible to use outside the lab.



“Currently, to test for cancer, you must wait until there’s a visible tumor or a sufficient volume of cancerous cells in a blood sample,” he said. “By that time, the cancer may be advanced. But cancer starts with single cells. If doctors

could separate those cells from among millions of blood cells, we could detect cancer much sooner—at a point where it's not visible using other techniques. This could advance diagnoses by months or even years and make treatment much more successful.”

Read [more](https://phys.org/news/2017-12-optical-device-lab-clinic-cancer.html#jCp) at:  
<https://phys.org/news/2017-12-optical-device-lab-clinic-cancer.html#jCp>