

Abstract Submitted
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Fabrication of a three dimensional particle focusing microfluidic device using a 3D printer, PDMS, and glass¹ ROBYN COLLETTE, DANIEL ROSEN, KATHRYN SHIRK, Shippensburg University of Pennsylvania — Microfluidic devices have high importance in fields such as bioanalysis because they can manipulate volumes of fluid in the range of microliters to picoliters. Small samples can be quickly and easily tested using complex microfluidic devices. Typically, these devices are created through lithography techniques, which can be costly and time consuming. It has been shown that inexpensive microfluidic devices can be produced quickly using a 3D printer and PDMS. However, a size limitation prohibits the fabrication of precisely controlled microchannels. By using shrinking materials in combination with 3D printing of flow-focusing geometries, this limitation can be overcome. This research seeks to employ these techniques to quickly fabricate an inexpensive, working device with three dimensional particle focusing capabilities. By modifying the channel geometry, colloidal particles in a solution will be focused into a single beam when passed through this device. The ability to focus particles is necessary for a variety of biological applications which requires precise detection and characterization of particles in a sample.

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