

Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Developing a protocol for creating microfluidic devices with a 3D printer, PDMS, and glass¹ ROBYN COLLETTE, ERIC NOVAK, KATHRYN SHIRK, Shippensburg University of Pennsylvania — Microfluidics research requires the design and fabrication of devices that have the ability to manipulate small volumes of fluid, typically ranging from microliters to picoliters. These devices are used for a wide range of applications including the assembly of materials and testing of biological samples. Many methods have been previously developed to create microfluidic devices, including traditional nanolithography techniques. However, these traditional techniques are cost-prohibitive for many small-scale laboratories. This research explores a relatively low-cost technique using a 3D printed master, which is used as a template for the fabrication of polydimethylsiloxane (PDMS) microfluidic devices. The masters are designed using computer aided design (CAD) software and can be printed and modified relatively quickly. We have developed a protocol for creating simple microfluidic devices using a 3D printer and PDMS adhered to glass. This relatively simple and lower-cost technique can now be scaled to more complicated device designs and applications.

¹Funding provided by the Undergraduate Research Grant Program at Shippensburg University and the Student/Faculty Research Engagement Grants from the College of Arts and Sciences at Shippensburg University

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Date submitted: 14 Nov 2014

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