

Abstract Submitted
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Set up of a pumping system using 3D printing for microfluidics studies LUISA PIRES FERREIRA, VARLEI RODRIGUES, VLADIMIR GAAL, IFGW - Unicamp, Campinas, Brazil —

Microfluidics deals with the manipulation of fluidics inside channels with micrometric cross-section dimensions, allowing for laminar flow transport. It has multidiscipline applications, attracting the attention of different fields.

Before, microfluidic research required clean rooms and specific equipment to create the channels. However, they have been substituted by polymer modeling using 3D print. For this project we produced microfluidic devices with lactic polyacid (PLA), a polymer made with renewable sources (such as sugar cane and maize starch), that allows for 3D printing. This fabrication technique also allows for easy and fast reproducibility.

The commercial pumping systems, usually used in this field of study, have a high price in the market and show some research application restrictions. Looking for independent flux control in multiple entrance devices and lower prices, we created a pump that fits our needed criteria in this work. It utilizes Arduino programming to control the flux in three independent fluids exits and 3D printing for creating its pieces.

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