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Microfluidics Device Simulation in MATLAB MICHAEL FOREMAN, KATHRYN SHIRK, Shippensburg University — Microfluidics fluid channels have different dominant properties of flow than do macrofluidic channels. At small channel sizes, the calculations that model the fluid flow need to include slip velocity at the walls of the channel, the mean free path of particles, and other factors that can be difficult to compute. In order to reduce the potential for error and provide meaningful graphical representations of the computations, a computer program can be implemented. We are creating a MATLAB program suite to perform the relevant calculations quickly and accurately. Additionally, by building on this program, the potential for testing new ideas for microfluidic devices can be realized. This would reduce the costs associated with prototyping microfluidic devices as devices can be modeled in software without the need for creating physical devices until the concepts are shown to be viable.

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