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**The excel file contains experimental data for the paper. It comprises 5 sheets** **named as follows:**

**Fig4\_PET CA**. The contact angle measurements of DI water on PET fil. In detail, a 3 μL DI water droplet were placed on the adhesive surface of the PET film. Each measurement was repeated three times.

**Fig5\_SimVsExp**. Comparison between the experimental average flowrates and the theoretical flowrate while the liquid meniscus advances in the 2-turn, 10-turn and 20-turn serpentine microchannel.

**Fig8\_2turn:** Average flowrates filling regions 1 to 4 of devices comprising capillary pumps having minimum feature size of 50 μm 100 μm 150 μm and are combined with 2-turn preceding microchannel.

**Fig9\_10turn**. Average flowrates filling regions 1 to 4 of devices comprising capillary pumps having various MFS and 10-turn microchannel.

**Fig10.** Average flowrates while filling front advances in regions 1 to 4 of devices with circular and diamond micropillars. Different columns represent 2, 10 and 20-turn microchannels.

Date of data collection: from August 2016 - September 2016

Information about geographic location of data collection: University of

Southampton, U.K.