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Forced drainage and imbibition in microfluidic porous media
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Sungkyunkwan University, HOWARD STONE, Princeton University — We present
an experimental study on the dynamics of two-phase flow in microfabricated porous
media. In particular we focus on pressure-driven imbibition and drainage in two-
dimensional networks of microchannels. We vary the geometrical features of the
network, viscosity of the non-wetting fluid and surface chemistry of the microchan-
nels. The rate of displacement and entrapment of the liquid are studied. A simple
model that accounts for capillary and viscous effects is compared with the experi-
mental results.

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