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A comparative study of SU-8 and wax based paper-fluidic device with respect to channel geometry JINKEE LEE, ALI TURAB JAFRY, HOSUB LIM, Sungkyunkwan University — Although many fabrication techniques of paper fluidic devices have evolved as a result of its broad application spectrum and ease of use, the technology has still barely scratched the surface of its potential in terms of its underlying fundamental principle i.e. fluid flow analysis. In this paper we have studied the comparison of flow profile attained by using two of the most promising techniques of photolithography and wax printing from a hydrodynamic point of view. A modified protocol for synthesizing an SU-8 based channel and wax based channel is created by optimizing few process parameters to our equipment. Water and oil (oleic acid) are chosen as hydrophilic and hydrophobic fluids respectively and their flow is analyzed in straight channels within paper device. A new approach to vary flow velocity is described in detail involving dots as resistance inside the paper channel. Observing the length-time curve for the two fluids, it becomes evident that both follow the Lucas-Washburn equation if the width of channel is large enough. Various configurations of dots reveal different longitudinal flow velocity implying its application in simultaneous addition of chemicals without the need to change channel width or length

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