

Abstract Submitted  
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**Lithography-Free Microchannel Fabrication in PDMS<sup>1</sup>** JEYANTT

S. SANKARAN, Department of Electrical Engineering, Nanotechnology Research and Teaching Facility, University of Texas at Arlington, WINTANA T. KAHSAL, UYEN H.T. PHAM, Department of Bioengineering, Nanotechnology Research and Teaching Facility, University of Texas at Arlington, SAMIR M. IQBAL, Department of Electrical Engineering, Nanotechnology Research and Teaching Facility, University of Texas at Arlington — We report a novel method for the fabrication of microchannels that could potentially be used for pervaporation experiments, cell adhesion and cell movement studies and detection of selective protein bio-markers. PDMS can sustain high temperatures, has a high young's modulus and it is biologically inert. Hydrophobic-hydrophilic interactions at gel point of PDMS form the basis of the presented technique. The repulsion of hydrophilic particles by the hydrophobic polymer matrix, stemming from the reduction of entropy and free energy variations during polymerization, provides an elegant lithography-independent approach for the fabrication of self-aligned microchannels.

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