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(54) **FABRICATION METHOD OF TOPOGRAPHICALLY MODULATED MICROSTRUCTURES USING PATTERN HOMOGENIZATION WITH UV LIGHT**

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(57) **ABSTRACT**

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A method for microfabrication of a microfluidic device having sub-millimeter three dimensional relief structures is disclosed. In this method, homogeneous surfaces, which do not exhibit apparent pixel geometry, emerge from the interaction of the overlapping of diffracted light under opaque pixels and the nonlinear polymerization properties of the photoresist material. The method requires a single photolithographic step and allows for the fabrication of microstructures over large areas (centimeters) with topographic modulation of features smaller than 100 micrometers. The method generates topography that is useful in a broad range of microfluidic applications.

