

Smart Print UV System: A High-Resolution Maskless Lithography Technology for Cost-Effective and Rapid Fabrication

Martin Predanocý ^{a)}, Jaroslava Škriniarová, Robert Andok and Pavol Nemeč

*Institute of Informatics, Slovak Academy of Sciences,
Dúbravská cesta 9, 845 07 Bratislava 45, Slovak Republic*

^{a)} Corresponding author: martin.predanocý@savba.sk

Abstract. In this article, we present the Smart Print UV system as a novel maskless lithography technology for the cost effective fabrication of high resolution microstructures needed in microelectronics, microfluidics, biotechnologies and optoelectronics. We describe the working principle of the equipment and provide our first preliminary experimental results which demonstrate that the Smart Print UV system is a highly efficient and versatile lithography technology that enables the production of complex patterns with high accuracy. The system is compatible with UV-curable i-line and broadband photoresists that can be patterned directly onto the substrate without the need for a physical mask, which reduces the cost and complexity of the lithography process. We show here our first results achieved with the AZ 5214E and ma-N 1420 photoresists with test structures patterned on Si and GaAs substrates. Minimal size of fabricated patterns was 10 μm .