

3D POLYMER BASED AIR-BRIDGE WAVEGUIDES FOR ON-CHIP APPLICATIONS

Goraus M., Pudiš D., Urbancová P., Jandura D., Gašo P.

Dept. of Physics, Faculty of Electrical Engineering, University of Zilina, Univerzitna 1, 01026 Zilina, Slovakia

In this paper we prepared three-dimensional (3D) optical waveguides based on IP-Dip polymer which may be attractive for photonic and sensing applications. We designed and prepared different photonic structures as Bragg grating, Fabry-Pérot and Lloyd interferometer. For the waveguide fabrication in IP-Dip polymer we used 3D laser lithography based on direct laser writing process. The surface quality of the waveguides and interfaces of the prepared gratings were investigated by scanning electron microscopy (SEM) and confocal microscope (CM). Transmission properties of SR-BG waveguides were analyzed by optical spectrum analyzer and related with the simulations. We achieved spectral dips of tens dB in transmission characteristics.

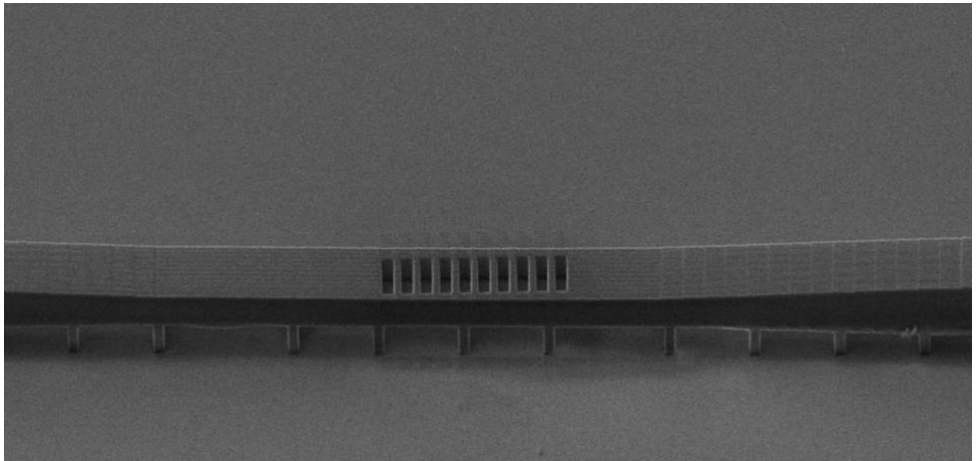


Fig. 1 SEM image of 3D Bragg grating waveguide based on IP-Dip.

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