

Analysis and optimization of large area two-photon polymerization phase fabrication

Emilia Wdowiak^{a##*}, Michał Józwiak^a, Piotr Zdańkowski^a Maciej Trusiak^a

^a*Warsaw University of Technology, Institute of Micromechanics and Photonics, 8 Sw. A. Boboli St., 02-525 Warsaw, Poland*

[#]*corresponding author email: emilia.wdowiak.dokt@pw.edu.pl*

^{*}*Presenting author*

Abstract for technical review

Large-area two-photon polymerization (TPP) holds promise for diverse applications in quantitative phase imaging methodologies but raises concerns regarding fabrication precision across the entire printing area. Utilizing TPP system from Nanoscribe GmbH, we explore these issues within theoretically precise area, declared by system's specification. Significant phase errors are observed, confirmed by Linnik interferometry. We investigate these errors using Zernike polynomial fitting for effective aberration analysis. Our methodology allows error correction, significantly reducing phase variations and improving large-area TPP quality.