

Title	Two-photon polymerization technique with sub-50 nm resolution by sub-10 fs laser pulses
Authors	Moritz Emons^{1*} Kotaro Obata² Thomas Binhammer³,Aleksandr Ovsianikov²,Boris N. Chichkov,² and Uwe Morgner^{1,2}
Publication	1 July 2012 / Vol. 2, No. 7 / OPTICAL MATERIALS EXPRESS 942
Abstract	Nanofabrication of structures with a feature size of sub-50 nm with ultrashort-laser based two-photon polymerization (2PP) technique is presented. The spatial resolution of the 2PP structures depends on the characteristics of the polymer material and the laser system used for fabrication. Here we compare the successful creation of sub-100 nm structures with two different few-cycle laser systems and chemically modified zirconium-based sol-gel composite material using cross-linker for resolution enhancement.
Laser Quantum Product	Venteon Pulse One
Institute	<i>¹Institut für Quantenoptik, Leibniz Universität Hannover, Welfengarten 1, 30167 Hannover, Germany</i> <i>²Laser Zentrum Hannover e.V., Hollerithallee 8, 30419 Hannover, Germany</i> <i>³VENTEON Laser Technologies GmbH, Hertzstr. 1b, 30827 Garbsen, Germany</i>