Micro-optical elements fabricated onto an optical fiber adaptor for beam guidance

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Multi-photon lithography (MPL) is a powerful 3D printing technique which enables the direct writing of computer-designed structures within the volume of a photosensitive material[1]. Over the last decade, MPL has been a leading technique for rapid prototyping of 3D micro-optical elements to be fabricated directly onto the end-face of optical fibers[2] and photonic devices[3] or even for development of micrometric resonators[4].

Fabrication of fiber-coupled integrated photonic devices requires robust and reliable way in order to attached optical fibers to other structures, often with sub-micron accuracy[5]. Thus, we developed an optical fiber adaptor through MPL technique where micro-optical elements will be fabricated onto the adaptor, in order to achieve laser beam guidance. This device holds its novelty to the fact that can be easily handled in order to take measurements for a variety of optical fibers and applications.

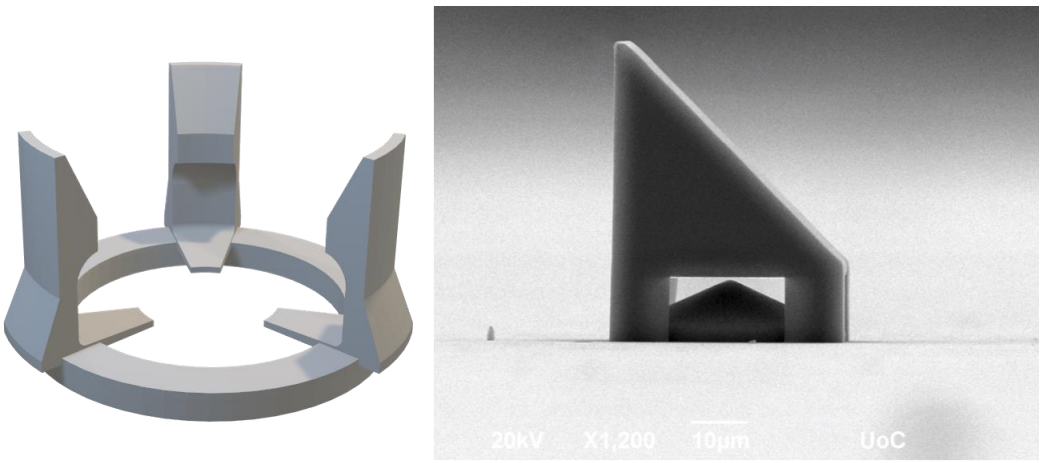

Figure 1: a. STL image of the optical fiber adaptor, b. SEM image of the micro-optical elements that will be attached to the adaptor

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