

SPATIAL LIGHT MODULATOR CORRECTION USING OPTICAL VORTEX DYNAMICS CRITERION

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Number of Laser beam shaping related research have been exceedingly growing in past years. One of the most important device used for both phase and amplitude modulation is Liquid Crystal on Silicon Spatial Light Modulator (SLM). SLMs are becoming more popular and quality of produced SLMs is increasing year by year. Nevertheless, SLMs still possesses some imperfections, that can affect modulated incoming light. Those are related to reflectivity factor, usage limitations and surface flatness deviation, being the main one. Several correction methods have been proposed so far, based on interferometric measurements or iterative phase retrieval algorithms [1, 2]. In this paper we examine some of these methods and we propose, to use optical vortex dynamics [3, 4] as quality criterion for beam modulated by SLM. Optical vortex dynamix is extremely sensitive to any phase disturbances. Hence this criterion can provide information about aberrations of optical system and additionally, about SLM modulation depth, which can be a strong advantage, especially for SLM used in precise measurements [5, 6].

References:

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