低電圧液晶レンズの駆動

Driving method of low voltage liquid crystal lens

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We have proposed a new type of liquid crystal (LC) lens using the four electrode structure first reported by Ooba, et al [1]. Here we report the driving method of the lens. Figure 1 shows the optical power of the lens at various voltage and phase. The white region indicates where the combinations of the voltage and phase drive the lens with rms aberration above 0.1 wavelength, and the combination should be avoided. The distance between the two electrodes on one substrate is 10 mm and the diameter of the LC lens is 3 mm. The maximum power of 1.6 D appears at 4.9Vrms voltage and 152 °phase. Figure 2 shows the focusing function realized using the LC lens in an imaging system.

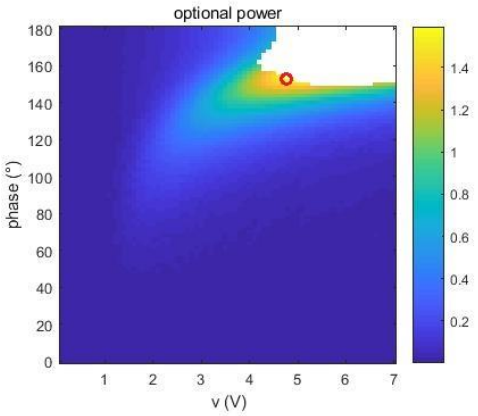

Figure 1 Optical power

[1] Y. Ooba, et al, Proc. SPIE 0639, Optical Information Processing II, (24 September 1986).