

Investigating the Effect of Color Mask on Sensitivity for the Color Schlieren Imaging

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Abstract

This work aims to investigate influence of the color mask for color schlieren technique. To demonstrate the effect, a series of experiments by changing the color mask shape are carried out. The applied color mask is a round mask with three RGB (red, green, and blue) colors gaps which is first presented by Settles, G. S. in 1980. In this work, experiments used a digital color mask instead of a film mask. The applied digital color mask is prepared in computer and projected by an LCD projector. The major discussed parameter is ratio of the outside and inside mask diameters. With the new technique, the digital color mask can be easily varied in computer directly and projected conveniently. In this work, the best color mask with outside diameter ca. 10 mm and inside diameter ca. 8 mm that has the highest sensitivity for color schlieren imaging has been successfully found. In general, the larger inside diameter, the higher sensitivity. The inside diameter has the limitation while the passing light intensity is too weak.

Keywords: color schlieren technique, color mask, LCD projector

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