Abstracts

Imaging Property of a Gas Lens

Y. Aoki and M. Suzuki. "Imaging Property of a Gas Lens." 1967 Transactions on Microwave Theory and Techniques 15.1 (Jan. 1967 [T-MTT]): 2-8.

Theoretical and experimental analyses on the imaging properties of gas lenses have been performed. The ray trajectory, ray matrix, lens formula, and optical transfer function of gas lenses are discussed. A gas lens of laminar flow type, using temperature gradients of air, has been made and some experiments on the image formation by the gas lens are conducted. To estimate the lens effect, the line spread functions are measured changing the variables which are concerned with the imaging action of the gas lens. The focal length of the gas lens is obtained from the characteristics of the line spread functions. The space-frequency bandwidth of the gas lens is expressed by the optical transfer functions obtained from the line spread functions and from the images of the Simensstar. Further, a telescope arrangement has been made using a gas lens for an object lens and a concave mirror for an eye lens. Experiments were performed with this telescope.

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