

Mode distribution in microoptical branching circuit

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Abstrak

A concept of phase space is usable to evaluate the characteristics of various components in microoptics engineering. In this study, a microoptical branching circuit by the use of three identical micro lenses has been constructed, for the purpose of dividing an input light beam into two outputs transmission and reflection beams, respectively.

Mode distribution of input and output beams is, represented by using phase space configuration. By computer simulation, the concept of phase space has been used to predict mode conversion of light guiding in the circuit.

The purpose of the study is to investigate the mode property in each element of the circuit, by measuring the far field mode distribution of the guided light. The existence of mode conversion in a particular element can be observed from the change of the respective mode distribution.

The experimental result shows a good agreement with that obtained by simulation of light guiding. It is concluded that, phase space representation derived from ray optics can be utilized as a software in analysis of wave guiding.