Study on the applicability of planar microlenses in microoptic components

Diah Intani, author

Abstrak

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In the optical communication system, we usually use some optical components consisting oF very small lenses ior coupling, branching, and transmitting lightwaves. Optical Fiber communication system has reached an integrated optical circuitry by utilizing optical elements with distributed-index medium. On the other hand, a concept of stacked planar optics has been developed based on the characteristics of distributed index medium in planar optical elements. A group of optical components which is known as microoptics is now a further development for realizing suitable microlenses for the purpose oi optimizing such components. For iocusing and imaging components, microlenses such as distributed-index (DI) or gradient-index (GRIN) rod microlenses , tiny spherical lenses,and similar optics have been utilized.

In this research work I have studied the applicability of planar microlenses as microoptic component. Two examples of such components are the branching circuit and the fiber coupler for working systems in optical fiber communications have been designed and constructed. I have also studied the focusing property of planar microlens with beam deviation method based on optical geometric concept.
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