MATHEMATICAL MODEL OF MICRO OPTICS IN MOEMS

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Abstract

In this paper, we examine the mathematical techniques of optical part in MOEMS for modeling and simulation. We determine the suitable technique to determine the optical propagation in scalar and vector situations. After examining several classical method, we conclude with the choice of an optical propagation and the implementation of this method in free space. Modern methodology of MOEMS design being extensively used is based on a system level, top down, MOEMS design process. The objective of this method is to optimize the function of the devices and to minimize development time and cost by avoiding unnecessary design cycles. Generally system level simulation comprises simulation of packaging, electronics, optical components and MEMS actuator. It is co-simulation of above with underlying analysis. This paper is only highlighting the optical part for design.