

Abstract

A novel solar concentrator systems have been designed by ZEMAX program, where the systems composed of one or two dimensions acrylic microlens arrays with and without BK7 multimode slab waveguide. Sunlight collected by each aperture of the microlens array and focus at photovoltaic cell PVC. This opens a new design space for high-efficiency systems with regards acceptance angle by using tracking mechanics. In this paper, the acceptance angle range of these optical systems have been evaluated. These configurations places strict requirements on mechanical tracking accuracy.