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A Two Dimensional Optical Input to One Dimensional Serial Pulse Transformation Using Confocal Reflectors

Abstract:

An optical approach using confocal parabolic reflectors is used to transform 2D input data based on spatial position to a 1D sequenced serial string. The optical input data are set up as a 2D array. Individual channels are established between the input array and the final output detector, which reads the data as a time based serial data. The transformation is achieved by changing the optical path length associated with each pixel and its channel to the output detector. The 2D data can be images or individual sources but the light must be parallel. This paper defines how to establish the channels and the calculations required to achieve the desired transformation.