Selective illumination of extended targets in array imaging

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Abstract

We present an algorithm that illuminates the edges or the interior of an extended target by choosing particular subspaces of the array response matrix. In the Fraunhofer diffraction regime, we characterize these subspaces in terms of the singular functions of a frequency and space restricting operator, which are also called generalized prolate spheroidal wave functions. Preliminary results of this analysis will be presented to explain the behavior of the algorithm.