

SYNTHESIS OF WIDEBAND LINEAR ARRAYS THROUGH CONVEX PROGRAMMING

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Abstract

In the last years the exploitation of Convex Programming (CP) has been proposed as a powerful tool to design optimal weighting sequences with arbitrary patterns. As a matter of fact, when the desired pattern features are expressed as power mask constraints, the determination of the weights of the array such that the upper and the lower bounds of the radiated pattern respect the constraints is a convex problem. As a consequence, effective tools can be used to find the optimum set of array weights, once the array geometry and the power pattern constraints are fixed.

This project is aimed to propose a CP-based strategy for the synthesis of wideband arrays, more and more frequently required for radar applications. Accordingly, the single-frequency pattern synthesis problem will be reformulated as a multi-frequency one, still exploiting the convex nature of the mask-constrained optimization problem.

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