

# ANTENNA ARRAY SYNTHESIS USING VARIABLE PROJECTION

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Exponential analysis methods have been previously reported for reducing the elements in linear arrays, by approximating their array factors using fewer elements. Most of these array synthesis techniques do not address the scan performance of the arrays. Moreover, obtaining a wide scan range is a particularly challenging problem since the arrays synthesized with these methods are typically aperiodic. Here, we propose some possible solutions, to improve the scan performance of aperiodic arrays, using exponential analysis and variable projection. Numerical experiments demonstrate that with the given techniques it is possible to reduce the elements in an array, while maintaining a wide scan range for the synthesized array, and with directivity that is comparable to an array with more elements.