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Array Pattern Nulling by Phase and Position Perturbations with the Use of a Modified Tabu Search Algorithm

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Abstract: A useful and flexible method based on the tabu search algorithm for the pattern synthesis of linear antenna arrays with the prescribed nulls is presented. Nulling of the pattern is achieved by controlling both the phase and the position of each array element. To show the versatility of the present method, some design specifications such as the maximum sidelobe level and the null depth level are considered by introducing a set of weighting factors in the cost function constructed for the tabu search algorithm. Several illustrative examples of a Chebyshev pattern with the imposed single, multiple and broad nulls are given.

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