Abstract

In the present work, pattern synthesis of linear arrays using APSO is presented. APSO algorithm is employed for the synthesis of uniformly spaced arrays of two classes using unequal phases with equal amplitudes and with unequal amplitudes. The main objective of this work is to minimize the sidelobe level with a constraint on beam width and to perform null steering for isotopic linear antenna arrays by controlling different parameters of the array elements. The results are compared with the patterns of uniform linear array. The sidelobe level is reduced for amplitude-phase synthesis when compared with phase only synthesis as the number of elements are increased in an array. The patterns are numerically computed for different number of elements.

References


- G. S. N. Raju, 2005. &quot;Antennas and Propagation,&quot; Pearson Education.
- G. K. Mahanti and A. Chakrabarty, 2007. &quot;Phase-only and amplitude-phase synthesis of dual pattern linear antenna arrays using floating point genetic algorithm,&quot;
Synthesis of Linear Antenna Arrays using Accelerated Particle Swarm Optimization Algorithm


Index Terms
Computer Science
Algorithms

Keywords
Pattern synthesis  Sidelobe level  Beam width  Accelerated Particle Swarm Optimization.