Abstract

The ever increasing wireless communication research is giving rise to a plethora of new communication techniques. There is also a wide spread increase in the use of existing systems such as mobiles, Wi-Fi, RADARS, Space communications etc. Consequently, the electromagnetic spectrum is getting overcrowded and there is an increase in interference due to use of multiple devices with in a small cluster. So, design of antennas with small sidelobe levels and nulls in interference direction is needed. This paper illustrates the procedure for placing nulls in the interference direction while reducing sidelobe level (SLL) of a CCAA under the constraint of fixed FNBW (as in the case of uniform excitation). IWO is used to find the excitation amplitudes of a three ring CCAA that satisfy the desired goal better. Three design examples are provided. IWO is more robust and efficient algorithm than GA, PSO and Simulated Annealing etc.
Invasive Weed Optimization (IWO) Algorithm for Control of Nulls and Sidelobes in a Concentric Circular Antenna Array (CCAA)

References

4. Thotakura T Ramakrishna Satish Raj and P Krishna Kanth Varma, “Real Coded GA (RCGA) for Control of Nulls and Sidelobes in a Concentric Circular Antenna Array (CCAA)” IJRECE Vol. 3 Issue 2 Apr-June 2015

Index Terms

Computer Science Wireless

Keywords

Invasive Weed Optimization (IWO) algorithm, Concentric Circular Antenna Array (CCAA), Nulls, Sidelobe levels (SLL), First Null Beam Width (FNBW), Real Coded Genetic Algorithm (RCGA).