Abstract

In this paper on which work done is nature inspired algorithm named Bat algorithm. nature is good source for inspiration in life in different way. Even in many search, nature gives good example for optimization many complex problems in engineering fields. Bat algorithm is metaheuristic algorithm like particle swarm, firefly. This paper formulates on echolocation behavior to reduce the crosstalk like FWM in optical wavelength division multiplexing (WDM) system for solving channel allocation problems by using concept of OGR (Optimal Golomb ruler). The comparative study of simulation results obtained by proposed metaheuristic Bat algorithm demonstrates better and efficient generation of OGRs without the requirement of increasing total bandwidth of channel, unlike the two existing conventional algorithms i.e. Extended quadratic congruence (EQC) and Search algorithm (SA), in terms of ruler length and total channel bandwidth.

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A Novel Bat Algorithm for Channel Allocation to Reduce FWM Crosstalk in WDM Systems


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Index Terms

Computer Science  Signal Processing
Keywords

Channel allocation, Genetic algorithm, Metaheuristic Bat optimization algorithm, Optimal Golomb ruler, FWM (Four Wave Mixing), WDM (Wave Division Multiplexing).