Optimizing Channel Allocation in Wireless Communication Using Single-Swap Mutation Based Heuristic

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***Abstract*— This paper presents a simple heuristic method, combined with a single-swap mutation, for minimizing the use of available channels in wireless communication networks. The task is to allocate carriers or channels to satisfy all demands in each cell for a particular network, subject to a number of constraints. The proposed method is to get the least number of channels without violating the constraint set. We test the proposed methodology on benchmark problems and manage to produce good quality solutions within a few seconds. Some of the results are very close to optimality, making this method suitable for generating initial solutions for population based approaches, such as genetic algorithm and artificial immune systems, to search for even better quality solutions.**

Keyword— heuristic; channel allocation; wireless communication; simple mutation; optimization;

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