

## Hybrid Approach for the Min-Interference Frequency Assignment

**Authors :** F. Debbat, F. T. Bendimerad

**Abstract :** The efficient frequency assignment for radio communications becomes more and more crucial when developing new information technologies and their applications. It consists in defining an assignment of frequencies to radio links, to be established between base stations and mobile transmitters. Separation of the frequencies assigned is necessary to avoid interference. However, unnecessary separation causes an excess requirement for spectrum, the cost of which may be very high. This problem is NP-hard problem which cannot be solved by conventional optimization algorithms. It is therefore necessary to use metaheuristic methods to solve it. This paper proposes Hybrid approach based on simulated annealing (SA) and Tabu Search (TS) methods to solve this problem. Computational results, obtained on a number of standard problem instances, testify the effectiveness of the proposed approach.

**Keywords :** cellular mobile communication, frequency assignment problem, optimization, tabu search, simulated annealing

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