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"Otimização Microcanônica Aplicada ao Problema do Caixeiro-Viajante"

The traveling salesman problem has been studied since the early days of scientific computation. This problem belongs to the NP-hard class of combinatorial optimization, which suggests that no algorithm will be able to solve it exactly in an efficient time scale. The need for approximation strategies is therefore apparent. Since the 80's, researchers have proposed optimization strategies derived from statistical mechanics as adequate for such problems. Our research consisted in an analysis of one such strategy, the microcanonical optimization algorithm (O), when applied to the traveling salesman problem. Compared to alternative techniques, such as tabu search, genetic algorithms and the annealing strategies, O proved itself an efficient algorithm for that application, suggesting that its use can be advantageous also in other combinatorial optimization domains.