

# Pre-processing, repairing and transfer functions can help binary electromagnetism-like algorithms

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The Electromagnetism-like algorithm is a relatively modern metaheuristic based on the attraction-repulsion mechanism of particles in the context of electromagnetism theory. This paper focuses on improving performance of this metaheuristic when solving binary problems. To this end, we incorporate three elements: pre-processing, repairing, and transfers functions. The pre-processing allows to reduce the size of instances, while repairing eliminates those potential solutions that violate the constraints. Finally, the incorporation of a transfer function adapts the solutions to a binary domains. We illustrate experimental results where the incorporation of these elements improve the resolution phase, when solving a set of 65 non-unicost set covering problems.

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Electromagnetism-like Algorithm

Metaheuristics

Pre-processing

Algorithms

Artificial intelligence

Repair

Social networking (online)

Binary problems

Electromagnetism theory

Electromagnetism-like algorithm

Improving performance

Meta heuristics

Pre-processing

Repulsion mechanisms

Set covering problem

Transfer functions