

# A XOR-based ABC algorithm for solving set covering problems

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The set covering problem is a classical problem in the subject of combinatorial optimization that consists in finding a set of solutions that cover a range of needs at the lowest possible cost. The literature reports various techniques to solve this problem, ranging from exact algorithms to approximate methods. In this paper, we present a new XOR-based artificial bee colony algorithm for solving set covering problems. We integrate a XOR operator to binarize the solution construction in order to cope with the binary nature of set covering problems. We also incorporate pre-processing phases and dynamic ABC parameters so as to improve solving time. We report interesting and competitive experimental results on a set of 65 benchmarks from the Beasley's OR-Library. © Springer International Publishing Switzerland 2016.

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