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Evolutionary algorithms for the optimization of membrane structures

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In this paper, a new evolutionary algorithm is proposed to solve the dynamic or uncertain optimization problems of objects, a dynamical membrane system. The object represents a dynamical structure which consists of several membranes, which is updated by the reaction rules. The reaction rules are designed to solve the dynamic optimization problem. The proposed algorithm is applied to the compounds in the region of chemical space. The results on the moving peaks benchmark function are compared with three state-of-the-art algorithms to indicate the proposed algorithm's performance.

Keywords: Membrane systems

Mathematics Subject Classification.

1. Introduction

Many real-world optimization problems in scientific research and engineering have dynamic and the constraint conditions change over time. The objective function and their corresponding fitness landscapes in the different phases of the problem is also changed over time [1]. The traditional static optimization problems called dynamic optimization problems. The solving methods is no longer suitable for solving dynamic optimization problems, but tracking the optimal solution as the fitness landscape is changing. The solving methods in terms of the solving methods